

Corporate Presentation

Q1 2021



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Company Overview



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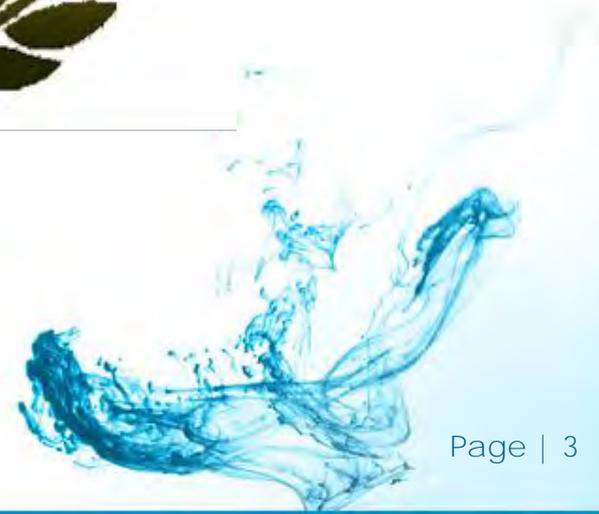
29

YEARS

1992-2021



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Corporate structure

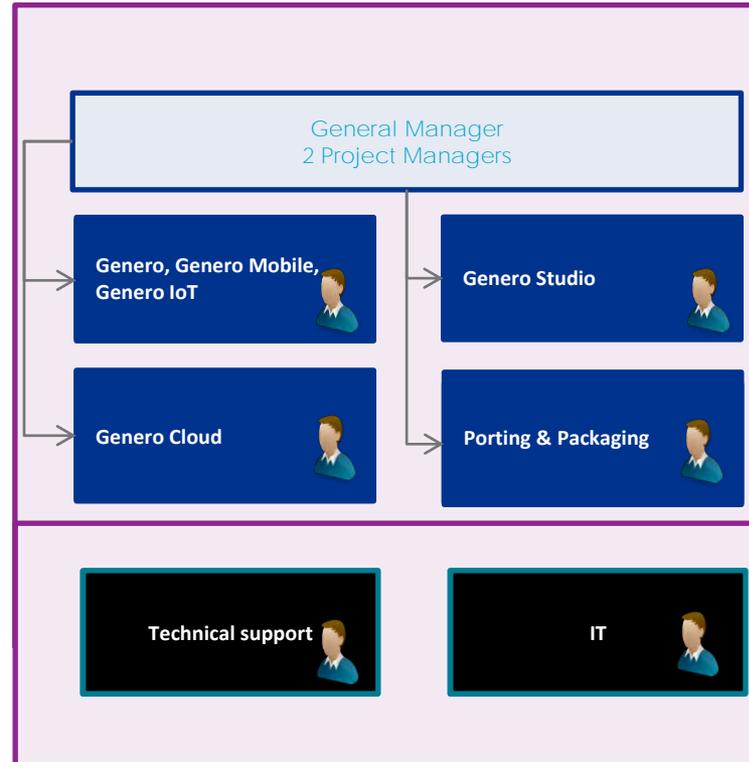
R&D organization

Strasbourg, France R&D center

- Located in sought after hi-tech Strasbourg business park,
- Built in 2008, original architecture, state-of-the-art glazing and surpasses European eco-standards by 15%,
- Equipped with:
 - 200+ servers (Dell x86) – Windows, Linux, SCO
 - Sun Solaris, IBM AIX, HP UX, Apple Mac
 - 1 Gbps Ethernet LAN, WAN 80Mbps
- R&D methodology:
 - Agile development: Scrum
 - 2 weekly cycle scrum teams
 - 3 bi-monthly cycle scrum teams
 - Managed by Jira Software
 - Agile technical support: Kanban
 - Ticket-based support queues
 - Managed by Jira Software



R&D organization



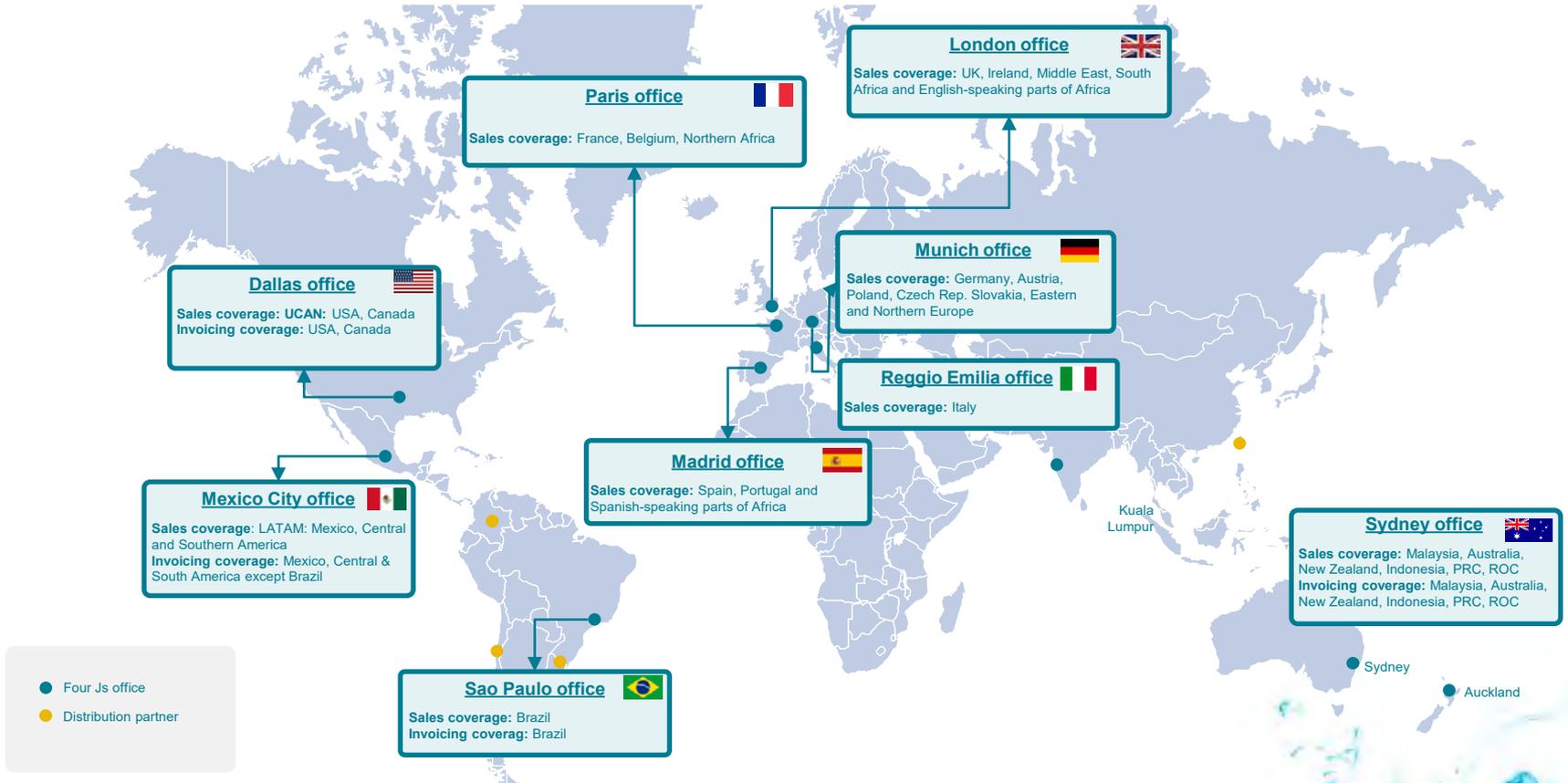
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3 million users
10-15% EBIT



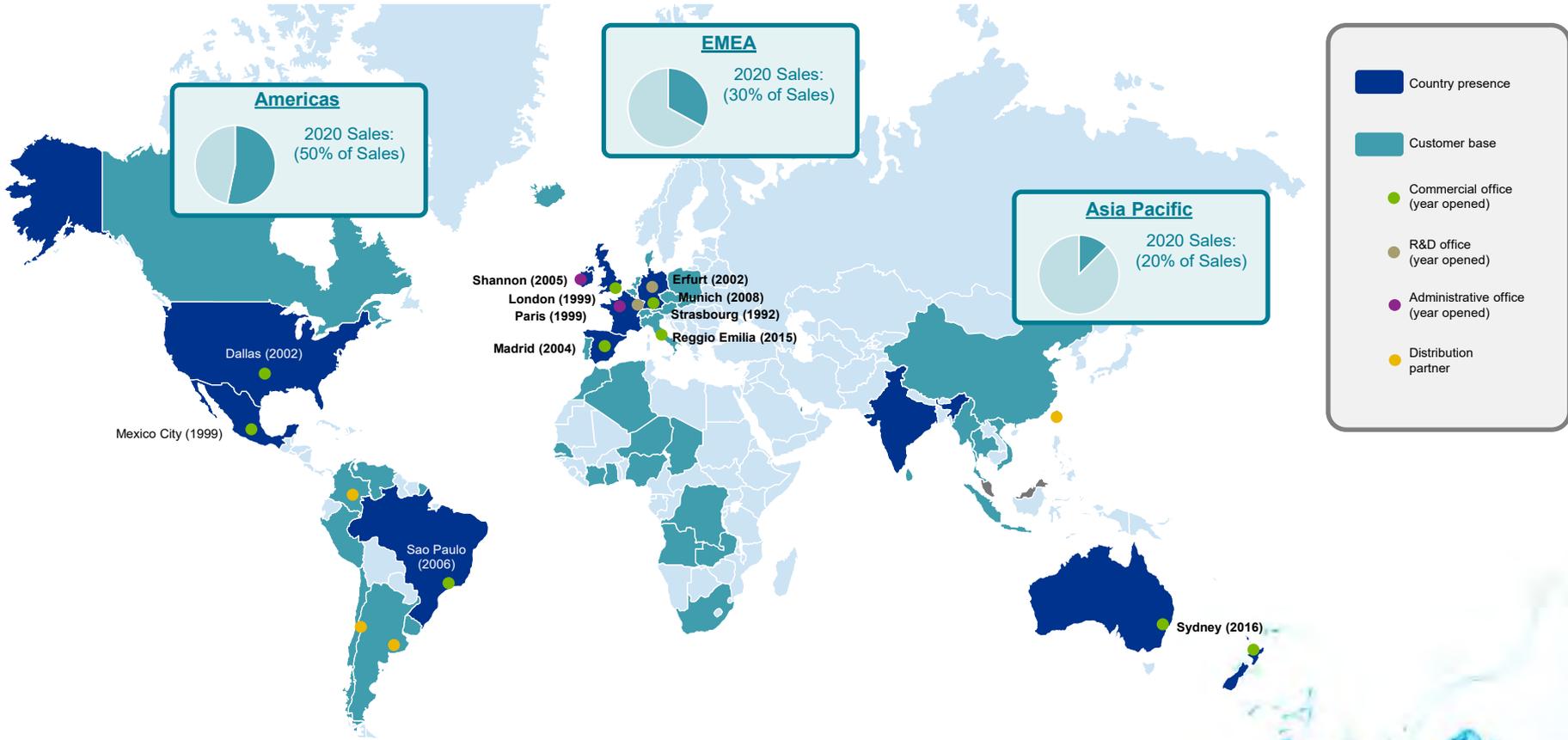
Corporate structure

Commercial organization – worldwide sales footprint



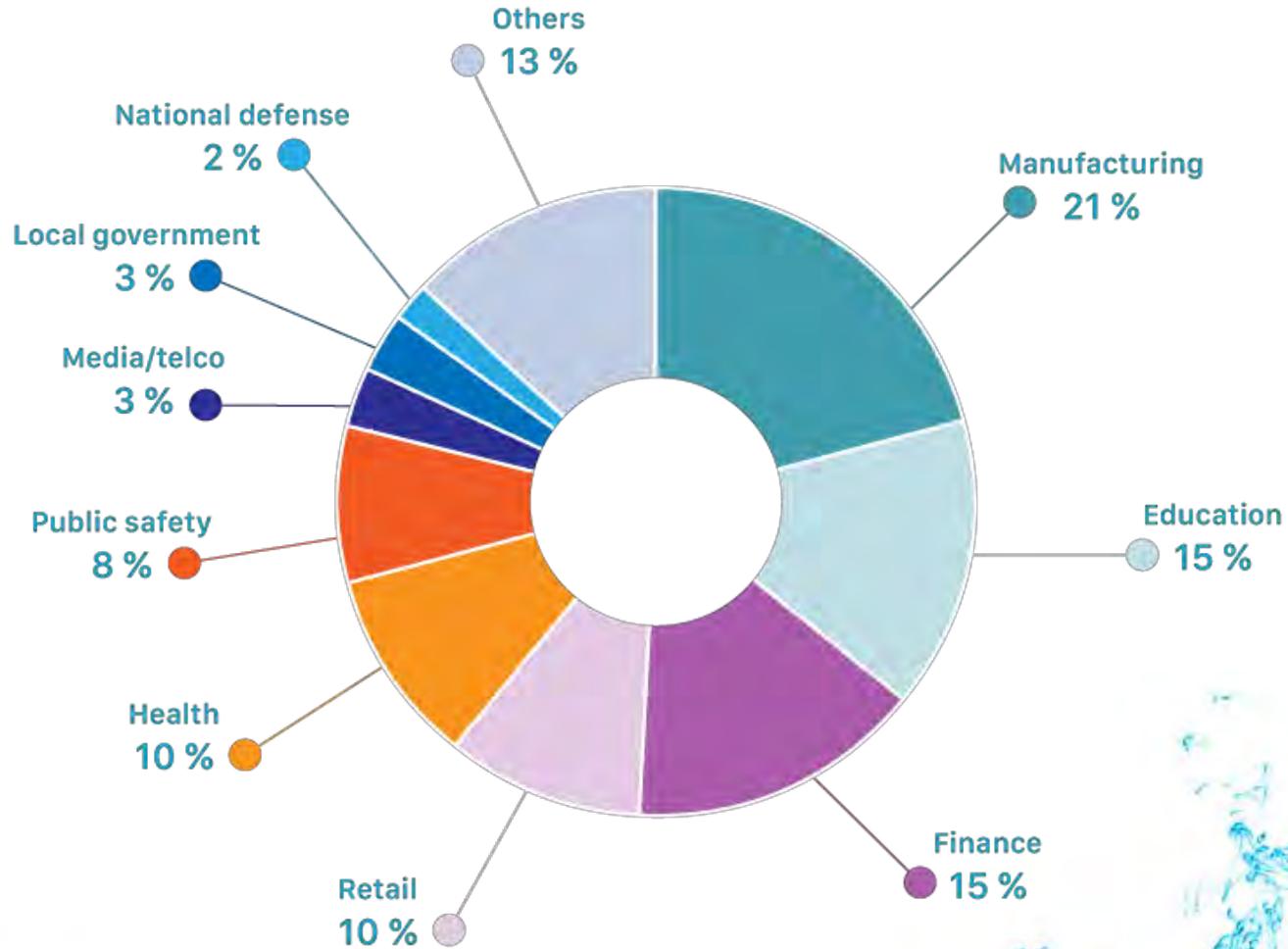
Corporate structure

Legal & functional – worldwide sales footprint



Our markets

Presence in key industries and government agencies



Top 10 Customers

CUSTOMER	USE CASE
 	<p>Public sector financial management, property taxes, courts and public safety for local governments and schools. When Microsoft abandoned Silverlight UI API, Tyler switched to a browser UI in a matter of months rather than years.</p>
 	<p>N°2 ERP solution provider in Taiwan and mainland China. Competes against SAP. Switched from Informix to Oracle database, MS Windows to Browser UI without touching business logic.</p>
 	<p>Core banking solution deployed in 40,000 seats of La Société Générale. and other leading banks.</p>
 	<p>Market requirement for same business logic to run on desktop and mobile devices. Readying launch of Smartphone based 'on-the-beat' police officer incident reporting to minimize admin overheads. North America public safety focus.</p>
 	<p>Supply Chain Managements solution for major retailers such as CVS Pharmacy, C&S Wholesale Grocers and manages UK Min. of Defense hardware logistics for overseas deployments.</p>
 	<p>Provides innovative, K-12 education technology software delivering better school management, student growth, and family engagement.</p>
 	<p>For public administration agencies, providing software for finance, HR/payroll, utilities, citizen engagement, community development, property tax, municipal services and asset management.</p>
 	<p>Develop a centralized critical medical information system that reduced waiting time for patients by 50% in under 6 months.</p>
 	<p>Public sector financial management systems for local city and education authorities.</p>
 	<p>Worldwide kitchenware manufacturer, 120 countries, 8,500 employees, 5M pieces per day. Made a conscious decision to not buy SAP and developed in-house ERP saving tens of millions of dollars.</p>

Our customers

Media



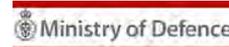
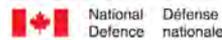
Finance



Retail



Govt.



Energy



Logistics



Dealers



JOHN DEERE

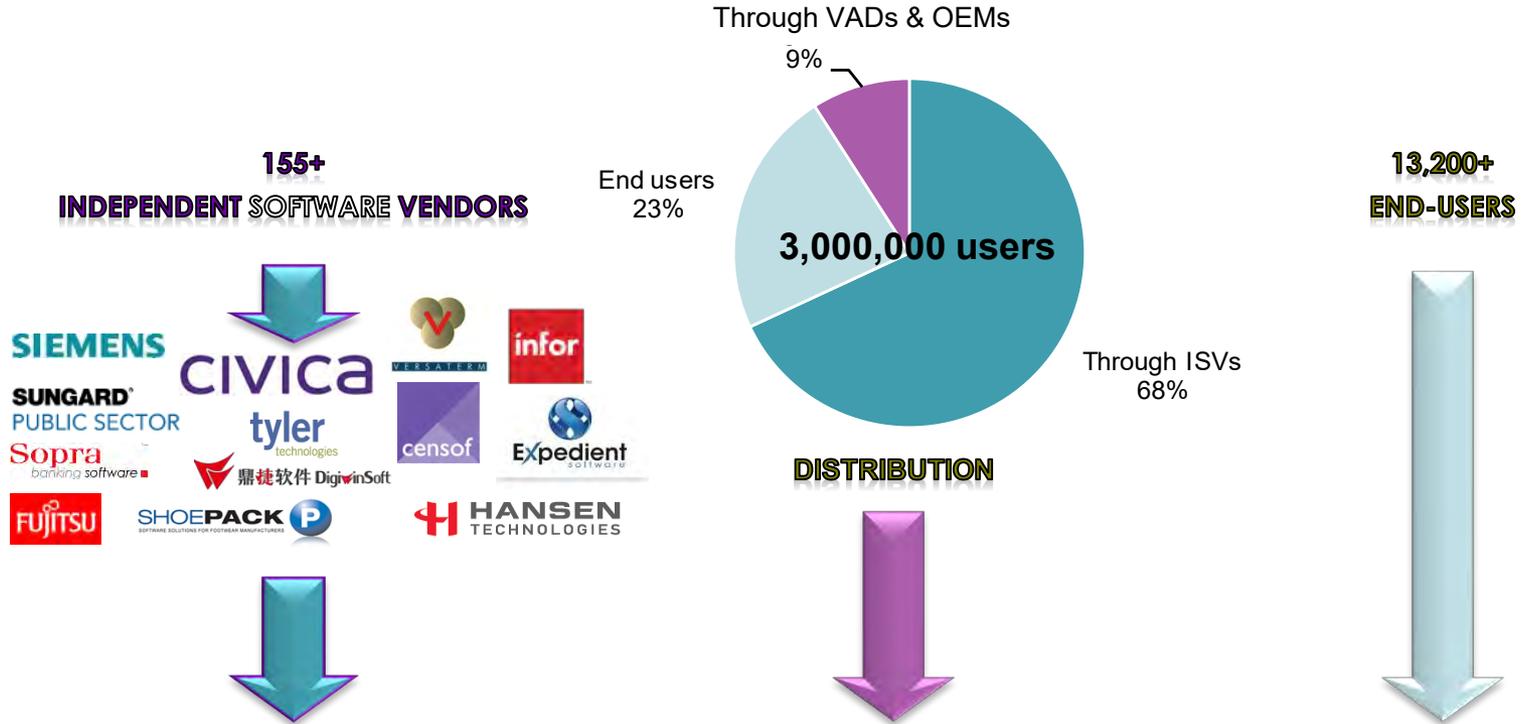


Mfg.



Our sales channels

ISVs, VARs, distributors and direct sales



The Business Problem



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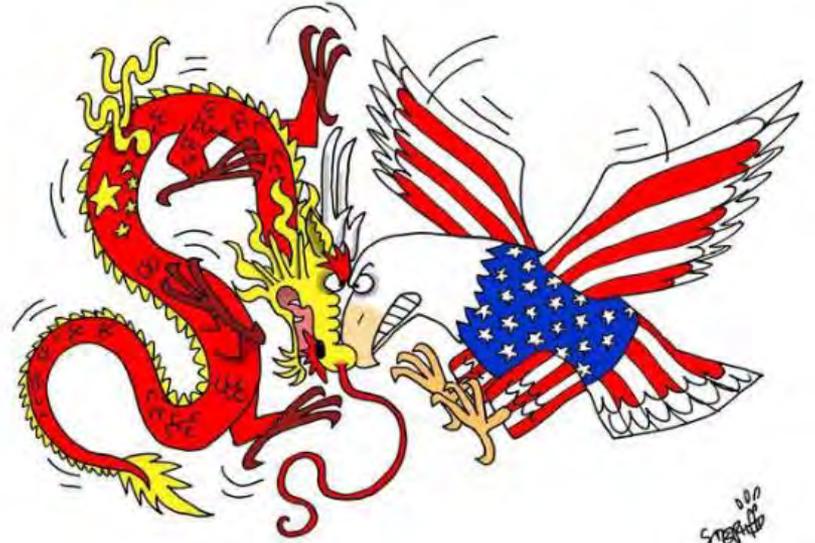


The business problem

Be responsive to change

- Global competition
- Economic uncertainty
- The accelerating rate of change
- Software complexity and quality
- Time-to-market

- Differentiating with value



The business problem

Be responsive to change

‘It is not the strongest
of the species that survives
nor the the most intelligent,
but the one most

responsive to change’

Charles Darwin

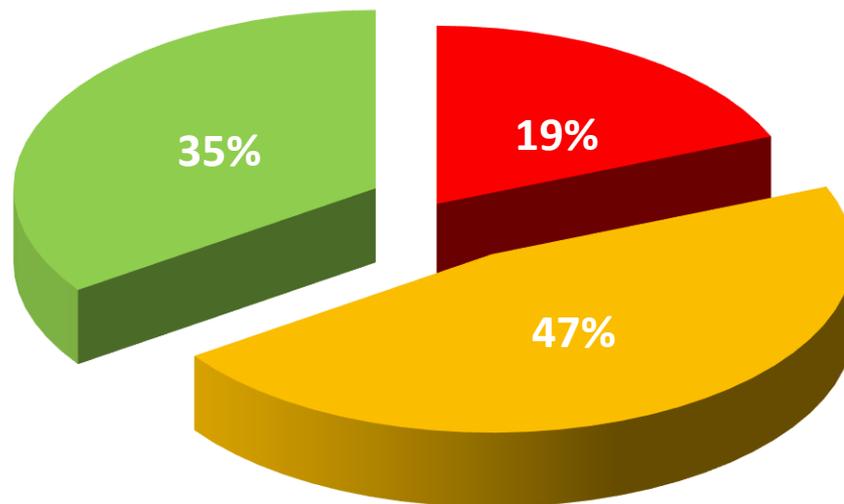
The Origin of Species, 1859



Chaos Report 2020

The success rate of projects – Chaos results 2015-2020

- 66% IT projects fail to deliver
 - On time
 - On budget
 - On expectations
- 50,000 enterprises
- 25 year study



- Failed
- Challenged
- Succeeded

© The Standish Group – Chaos Study



Developer productivity

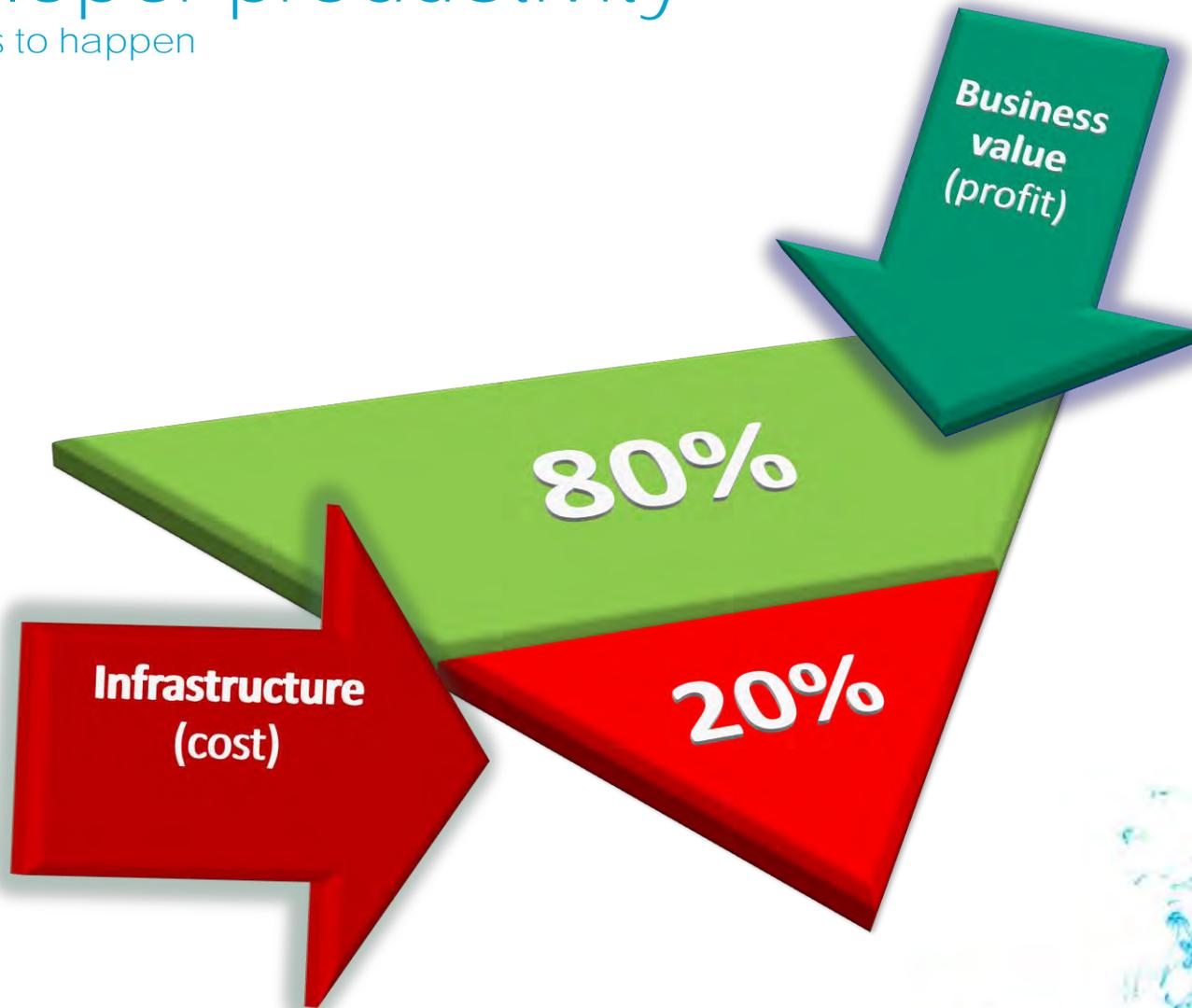
Where does development effort get spent?



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Developer productivity

What needs to happen



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Developer productivity

The cost of poor quality software

➤ Example

- A developer creates 100 bugs per 1,000 Lines Of Code (KLOC)
 - 50% of bugs reach test phase
 - A 50,000 line app. starts test w/ 2,500 bugs
 - Between 5 & 10 developer hours to fix each bug
- 20,000 developer hours to fix bugs
- A 5 person team, working 160 hours/month needs 25 months to fix all bugs

© Carnegie Mellon University – Capability Maturity Model – “Guidelines for Improving the Software Process”



Developer productivity

The cost of poor quality software

➤ Example

- Assume 70% certainty in code creation
- A 50,000 line app. starts test phase w/ 750 bugs
- Between 5 & 10 developer hours to fix each bug
- 6,000 developer hours to fix bugs
- A 5 person team, working 160 hours/month needs 7-8 months to fix all bugs
- Saving 1.5 years of testing for 5 people

© Carnegie Mellon University – Capability Maturity Model – “Guidelines for Improving the Software Process”



The Solution



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Low Code, No Code

Definitons: Low Code vs No Code

Both development platforms minimize or eliminate the amount of hand-written code needed to develop an application by using visual, declarative techniques, reusable components, drag-and-drop tools, and process modeling instead of traditional lines of code

➤ Low-code

- A scripting or fourth-generation language (4GL) programming environment, often extending model-or form-driven development environments
- Utilizes a constrained language mechanism to provide business logic, complex application flows and data operations, as well as external service access

➤ No-code

- A model-or form-driven graphical development environment, typically suitable for departmental and citizen developers
- Offer limited configuration options for representing business logic, simple application-flows, or accessing external services; can lack application performance and reliability relative to low-code and full-code solutions

Source: Gartner – August 8, 2019 “Enterprise Low-Code Application Platforms”



Low Code, No Code

Strategic Planning Assumptions 2020-2024

- **By 2024, three-quarters of large enterprises will be using at least four low-code development tools for both IT application development and citizen development initiatives.**
- **By 2023, low-code application development will be responsible for more than 50% of application development activity.**

Source: Gartner – August 8, 2019 “Enterprise Low-Code Application Platforms”



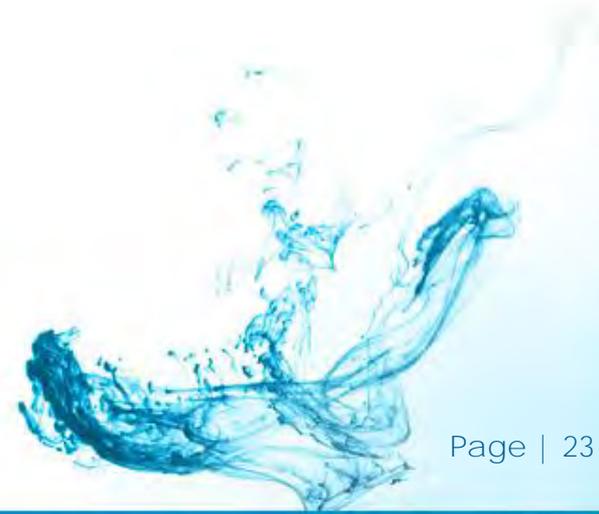
Low Code

Application use cases

➤ Typical low-code app profile

- Architecturally complex apps that require infrequent updates
- Apps that track core business processes
- Apps that are part of core business systems
- Apps that are established and have defined processes
- Apps can be mission-critical or not
- Apps with a 5+ year life cycle

Source: Quickbase



No Code

Application use cases

➤ Typical no-code app profile

- Apps used for capture, tracking, reporting and processing
- Apps that are evolving or encompass innovative processes
- Apps that can be standalone or integrated with core business systems
- Apps with a life cycle that spans from months to years

Source: Quickbase



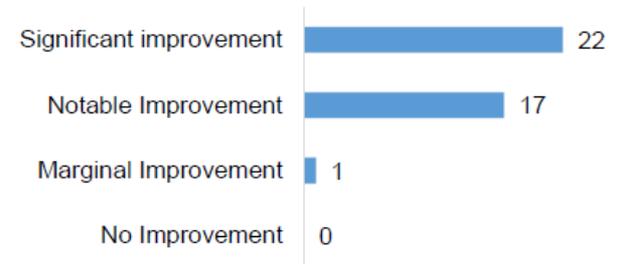
Low Code, No Code

Deliver apps faster

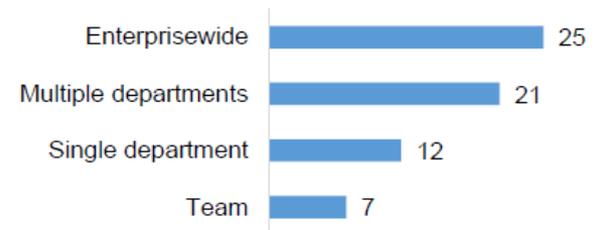
➤ **What are the challenges your organization faces in building custom applications using traditional coding with programming languages, frameworks, and middleware?**



➤ **Have low-code development platforms addressed these issues?**



➤ **What is the scale of applications your organization develops using this/these platform(s)?**



Genero Studio

Visual model driven, metadata based, fourth generation style programming language

The screenshot displays the Genero Studio 3.20.07 interface. The main workspace shows a visual model for an 'Account List' application. The model consists of several entities and their relationships:

- Accounts**: A central entity with a relationship of 2 to **Order List** and a relationship of 4 to **Phone**, **SMS**, **Mail**, and **Maps**.
- Order List**: A relationship of 2 to **Order**.
- Order**: A relationship of 2 to **Line Item List**.
- Line Item List**: A relationship of 2 to **Line Item**.
- Line Item**: A relationship of 2 to **Account Zoom** and **Item Zoom**.

The interface also includes a project tree on the left, a properties panel on the right, an output console at the bottom left, and a DB Explorer table view at the bottom right.

userid	email	firstname	lastname	acstatus	addr1	addr2	city	state	zip	country
smith	charles@smith.com	Charles	Smith	OK	49 Roche Way	NULL	Columbus	OH	75038	USA
dupont	jean@dupont.com	Jean	Dupont	OK	3, rue d'Aboukir	NULL	Paris	NULL	75002	FRA
miller	steve@miller.com	Steve	Miller	OK	191 North Orange Street	NULL	Orange	CA	92866	USA
denis	john@denis.com.au	John	Denis	OK	27 King William Rd	NULL	North Adelaide South Australia	NULL	5006	AUS
garcia	pedro@garcia.com	Pedro	Garcia	OK	Consuelo, 21	NULL	Salamanca	NULL	37001	ESP
bloggs	fred@bloggs.com	Fred	Bloggs	OK	177 Elms Crescent	NULL	London	NULL	SW4 8AF	GBR

Genero Studio

User interfaces, business logic and data services

The screenshot displays the Genero Studio 3.20.07 interface for an OfficeStoreMobile project. The main workspace shows a database schema diagram with tables: **segreg**, **inventory**, **item**, **product**, **account**, **orders**, **lineitem**, and **signature**. Relationships are indicated by lines connecting tables to their respective foreign keys. For example, **inventory** is linked to **item** via **fk_inventory_item**, and **item** is linked to **product** via **fk_item_product**. The **account** table is linked to **orders** via **fk_orders_account** and to **lineitem** via **fk_lineitem_orders**. The **signature** table is linked to **account** via **fk_signon_account**.

On the left, the **DB Schemas** pane shows a tree view of the **officestore** schema, including tables like **account**, **category**, **inventory**, **item**, and **orders**. The **Database Structure** pane on the right shows the **officestore** schema with a list of tables and their columns, such as **account** (userid, email, firstname, lastname, acstatus, addr1, addr2, city, state, zip, country) and **orders** (orderid, itemid, quantity, unitprice).

At the bottom, the **Document Errors** pane shows two errors: "Foreign key table is inactive." for **officestore/fk_inventory_item@table** and **officestore/fk_signon_account@table**. The **DB Explorer** pane shows a query result for `select userid, email, firstname, lastname, acstatus, addr1, addr2, city, state, zip, country, langpref, favcategory, mylistopt, banneropt, sourceapp from account`, returning 6 rows of data.

userid	email	firstname	lastname	acstatus	addr1	addr2	city	state	zip	country
smith	charles@smith.com	Charles	Smith	OK	49 Roche Way	NULL	Columbus	OH	75038	USA
dupont	jean@dupont.com	Jean	Dupont	OK	3, rue d'Aboukir	NULL	Paris	NULL	75002	FRA
miller	steve@miller.com	Steve	Miller	OK	191 North Orange Street	NULL	Orange	CA	92866	USA

Genero Studio

User interfaces, business logic and data services

The screenshot displays the Genero Studio 3.20.07 interface for an 'OfficeStore' project. The main workspace shows a report design with a header, a logo, and a contact card for 'Fred Bloggs' and 'Harris painting & decorating'. The design includes various elements like 'Any Page Header', 'Item Separator', and 'Textfeld'. The right-hand side shows the 'Report Structure' tree and the 'Properties' panel for the selected 'Geometry' element.

Report Structure:

- untitled1.4rp
 - Group account_userid [0; unbounded]
 - Group orders_orderid [0; unbounded]
 - Group lineitem_linenum [0; unbounded]
 - PageRoot
 - FirstPageHeader
 - ImageBox
 - showMeasures
 - StripeLayouter3
 - LogoAndOrganizationName
 - logoURL1
 - organizationName1
 - Adressfeld
 - Zusatz- und Vermerkzone
 - Anschriftzone
 - Rücksendeangabe

Properties:

Name	Value
Geometry	
X	27mm
Y	20mm
X-Size	85mm
Y-Size	45mm
Anchor X	
Anchor Y	
Alignment	near
Scale X	1

DB Explorer:

```
select userid, email, firstname, lastname, acstatus, addr1, addr2, city, state, zip, country, phone, langpref, favcategory, mylistopt, banneropt, sourceapp from account
```

userid	email	firstname	lastname	acstatus	addr1	addr2	city	state	zip	country
smith	charles@smi...	Charles	Smith	OK	49 Roche Way	NULL	Columbus	OH	75038	USA
dupont	jean@dupon...	Jean	Dupont	OK	3, rue d'Abou...	NULL	Paris	NULL	75002	FRA
miller	steve@miller...	Steve	Miller	OK	191 North Or...	NULL	Orange	CA	92866	USA

Select execution successful : 6 row(s) returned.

Developer productivity

Code twice as fast, with 5 times fewer bugs



www.issste.gob.mx

Institute of Social Security Services for Civil Servants

Observed productivity using CMM* Level 5		
Language	Productivity LOC/hr	Error Rate
 Genero.	11,98	3,03 %
 Microsoft .NET	6,72	12,15 %
 Java	5,68	18,73 %
 C++	5,14	26,59 %

(LOC/Hr - Lines of code per hour)

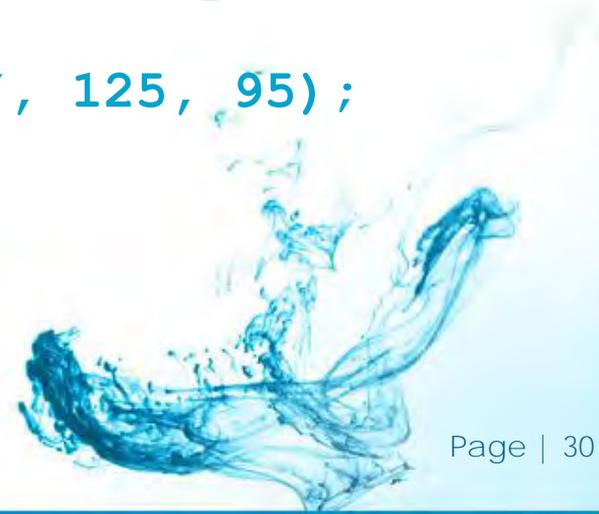
* Carnegie Mellon University - Capability Maturity Model – Guidelines for Improving the Software Process www.sei.cmu.edu/cmm



Developer productivity

The cost of poor quality software – Hello World!

```
Public class HelloWorld extends
javax.swing.JComponent {
    public static void main (String[] args) {
        javax.swing.JFrame f = new
            javax.swing.JFrame ("HelloWorld");
        f.setSize(300, 300);
        f.getContentPane().add(new HelloWorld());
        f.setVisible(true);
    }
    public void paintComponent(java.awt.Graphics
g) {
        g.drawString ("Hello, World!", 125, 95);
    }
}
```



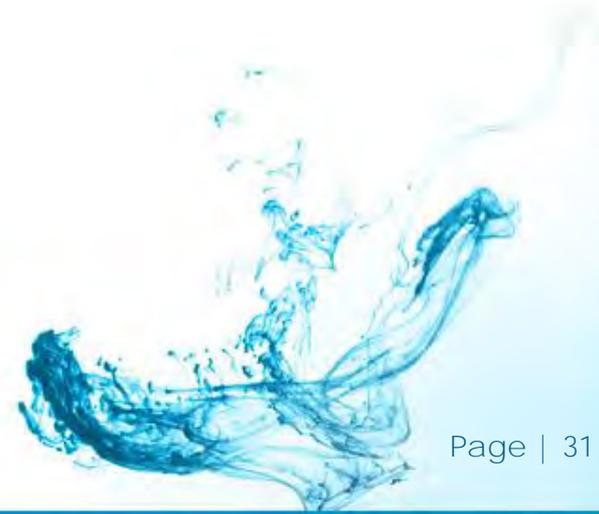
Developer productivity

The cost of poor quality software – Hello World!

```
display 'Hello, World!'
```



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Market disruption



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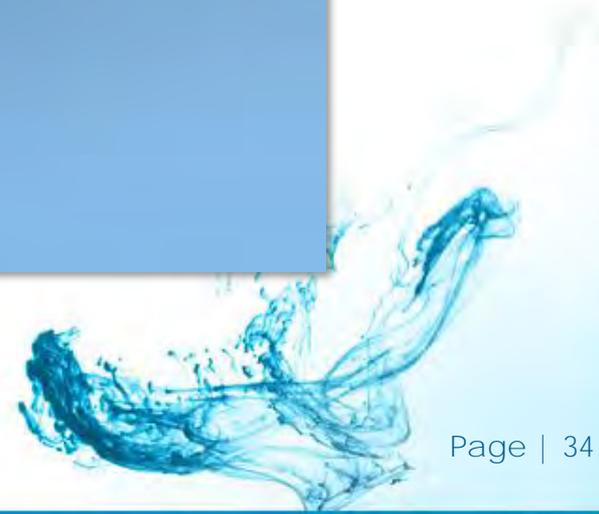


Consumer IT

Users prefer to use privately owned devices



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Consumer IT

The 5 big technology shifts



Industry trends

Innovation in weak user experience markets



 **airbnb**



 **U B E R**



Instacart



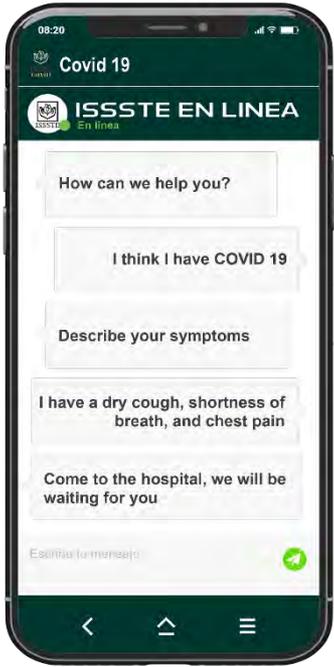
Industry trends

Healthcare

THEN

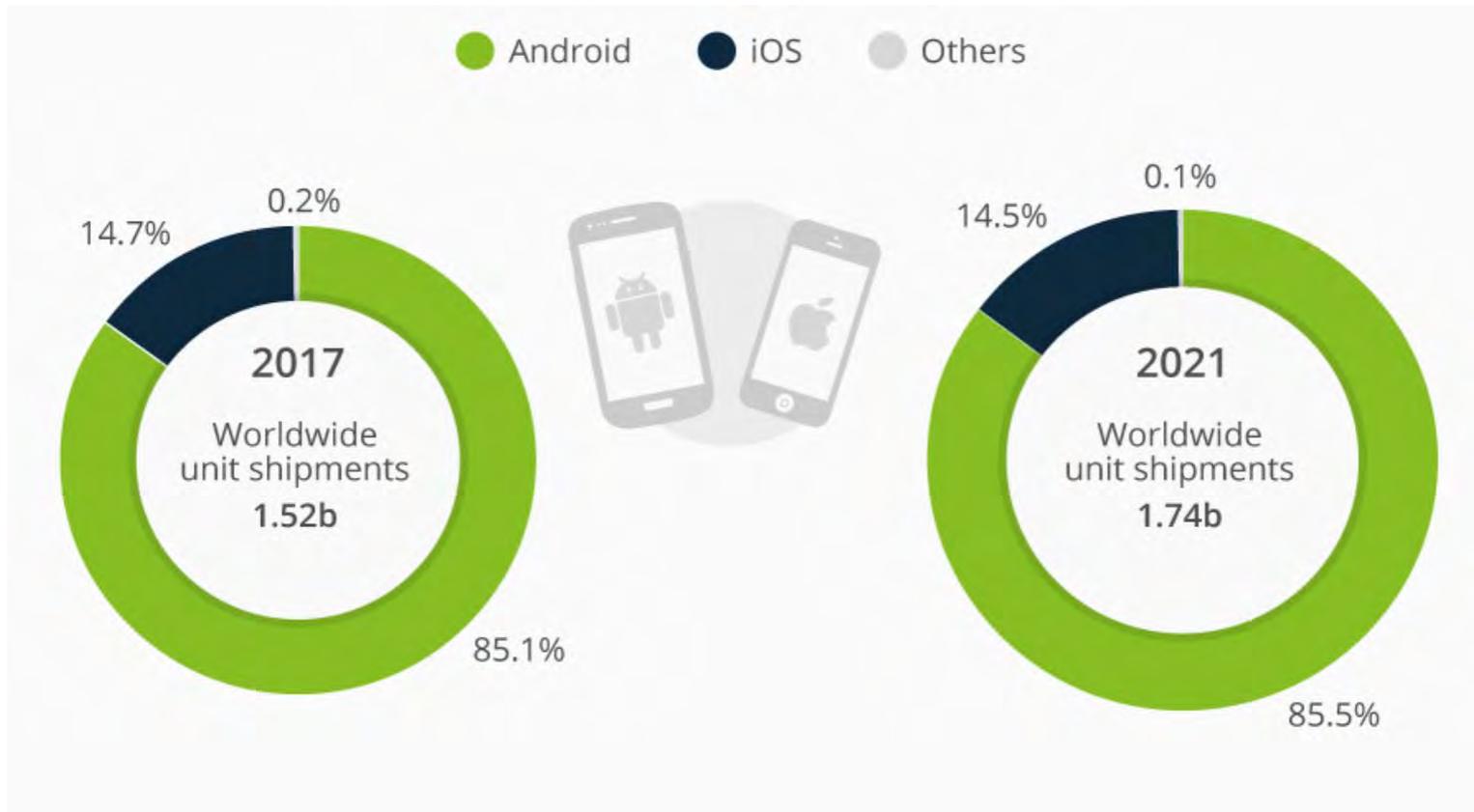


NOW



Smartphone market size

2017 - 2021 – worldwide smartphone shipment and marketshare



Source: Statista



User experience - ergonomics

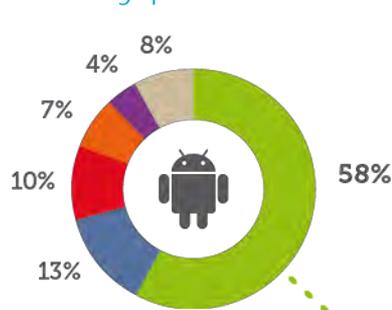
Two platforms – iOS & Android



iOS, Android and WP language lock-in

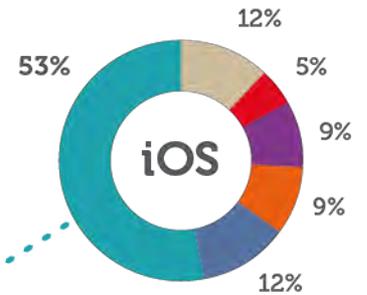
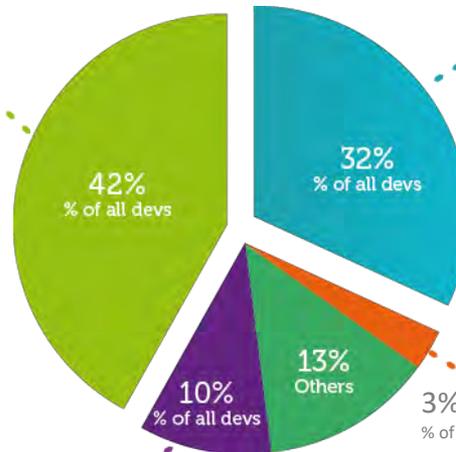
Primary language use by platform indicates platform loyalty

- Objective-C
- C/C++
- C#
- Java
- Visual Development Tool
- HTML/CSS/Javascript
- Others
- ActionScript



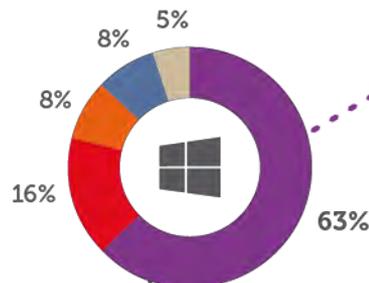
Platform Priority

% of all developers



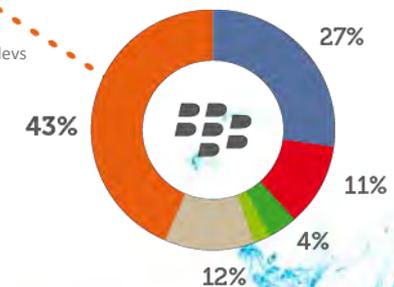
Windows Phone

Programming languages used by Windows Phone developers



Blackberry 10

Programming languages used by Blackberry 10 developers



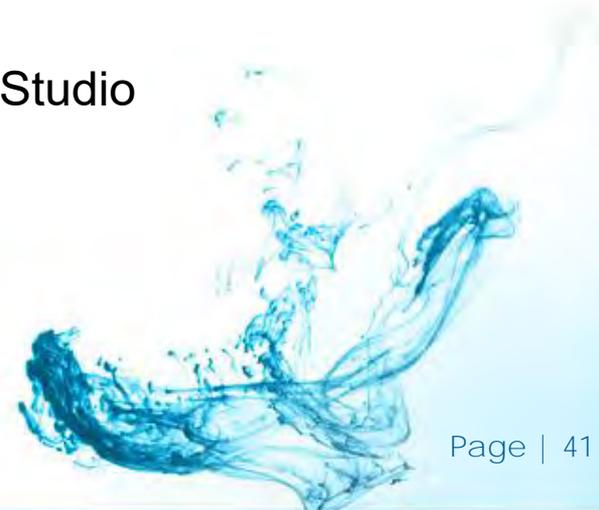
Mobile development tools

Two dominant proprietary frameworks



Xcode
Objective-C
C++
Cocoa Touch, Desktop
LLVM

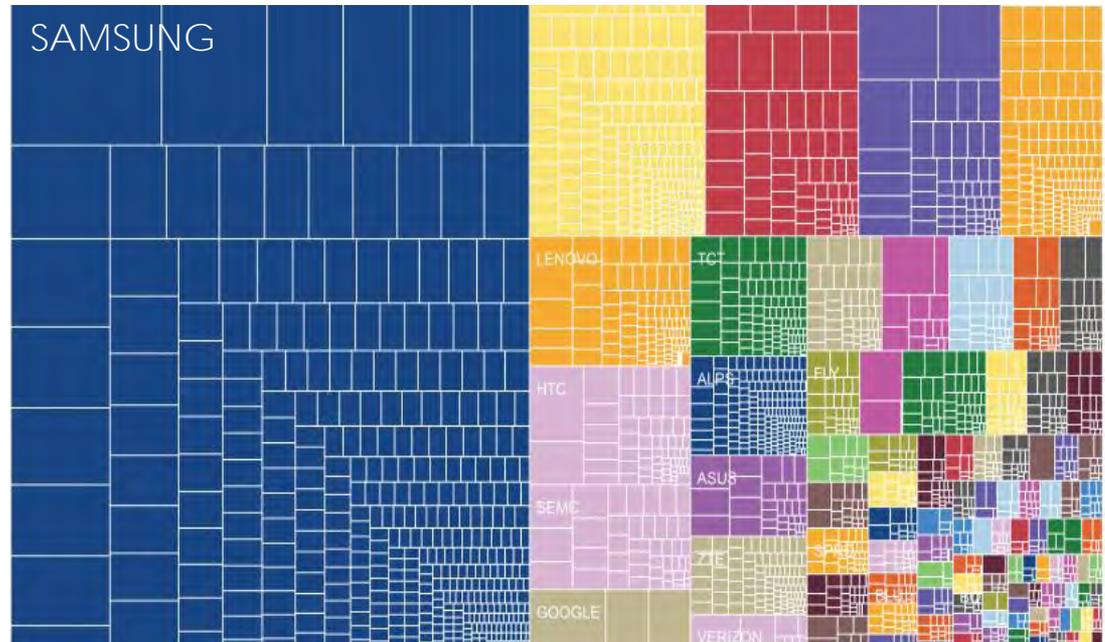
Eclipse
Android Studio
Java



Developer productivity

The developer's nightmare – Android fragmentation, by brand

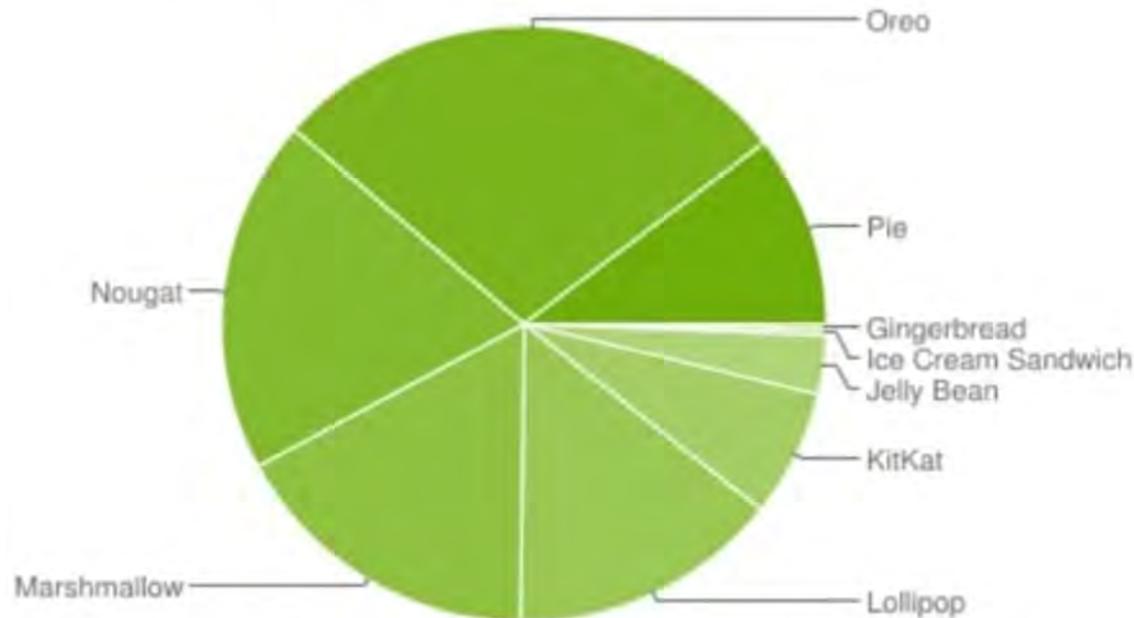
- 1,294 brands
- 24,000 distinct devices



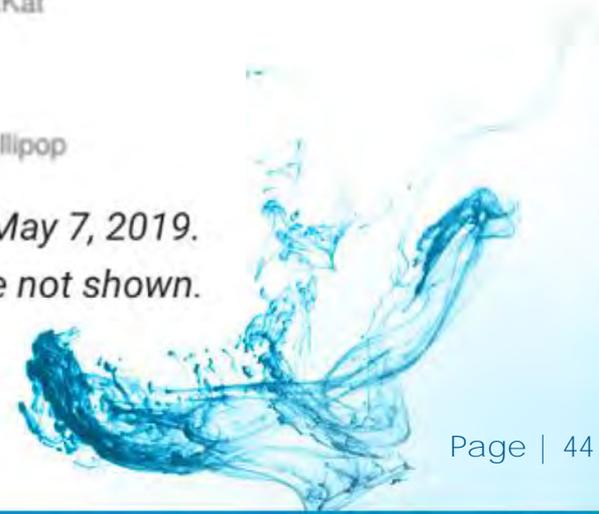
Developer productivity

The developer's nightmare – Android fragmentation, by OS version

?% of all devices use Android 10.



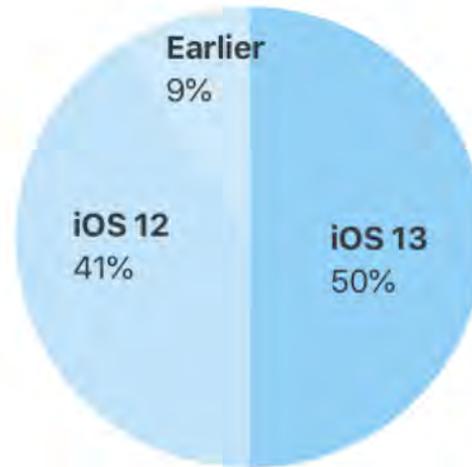
*Data collected during a 7-day period ending on May 7, 2019.
Any versions with less than 0.1% distribution are not shown.*



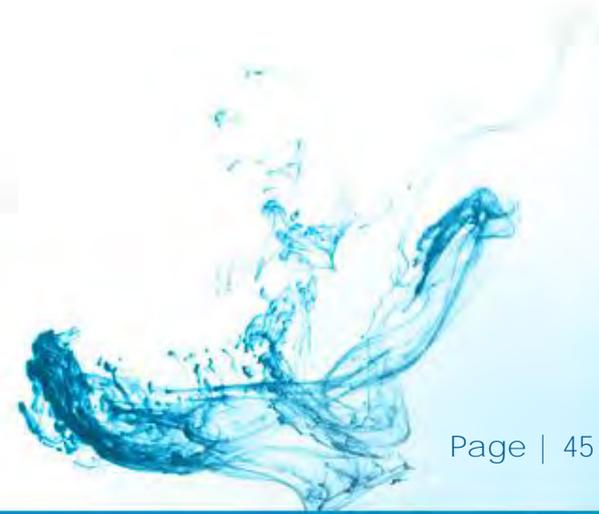
Developer productivity

The developer's nightmare – iOS fragmentation, OS version

50% of all devices use iOS 13.

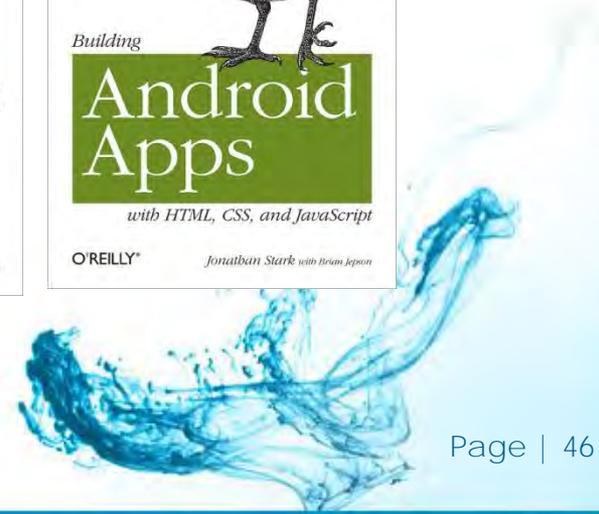
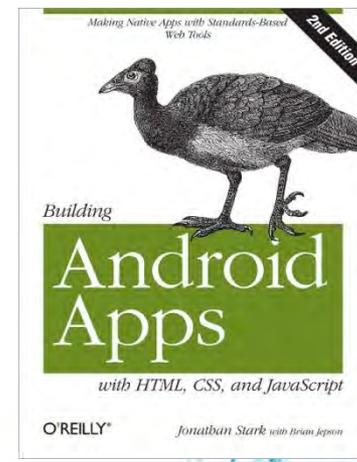
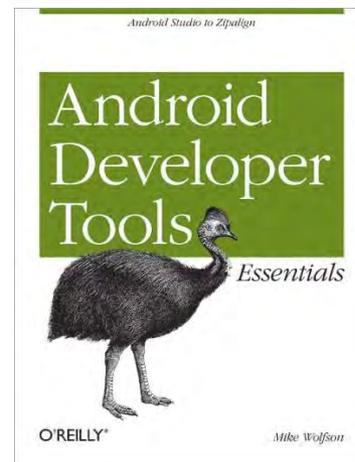
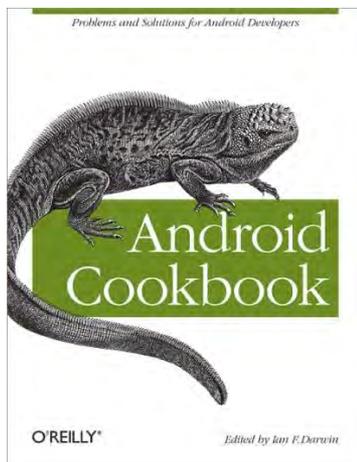
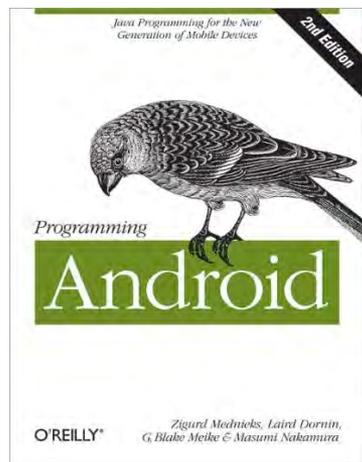
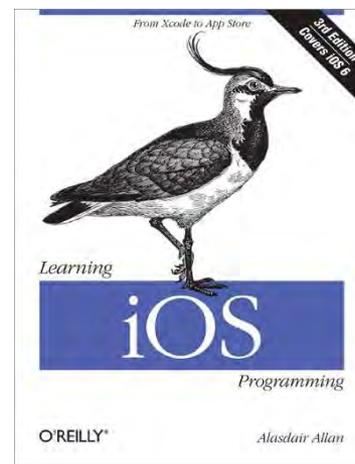
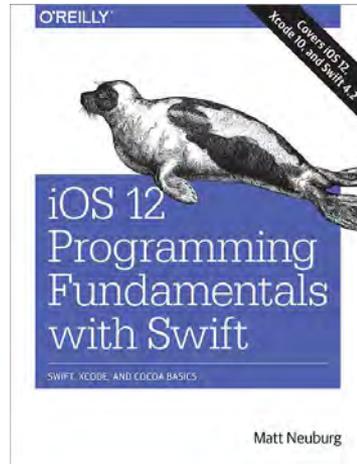
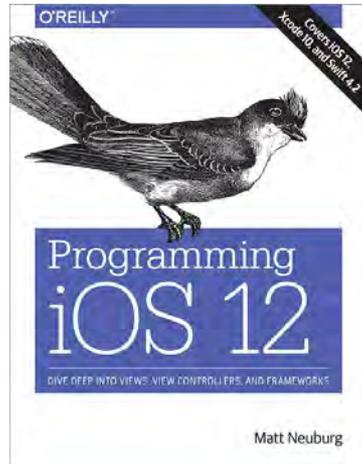


As measured by the App Store on
October 15, 2019.



Developer productivity

APIs perform device specific tasks defined by thousands of calls



Primary platforms

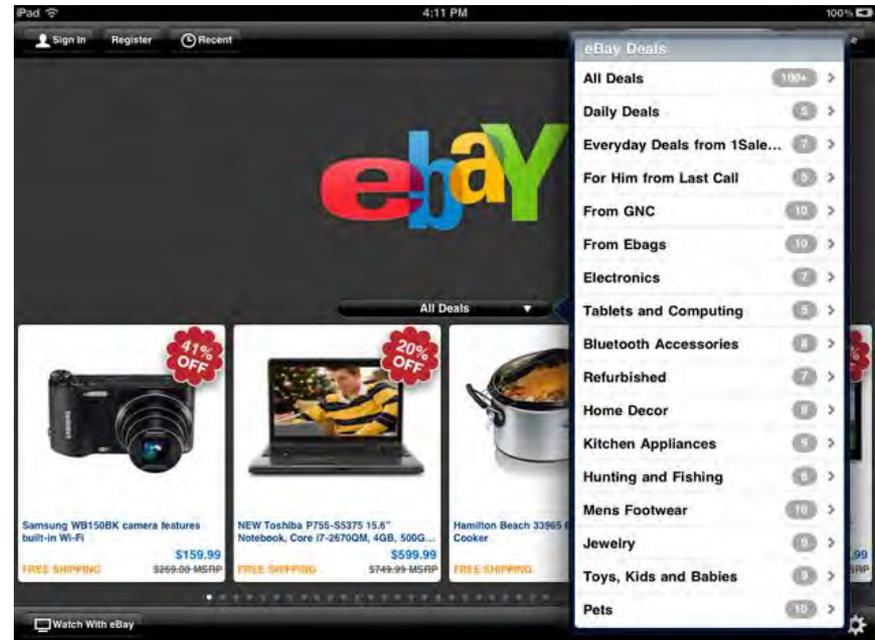
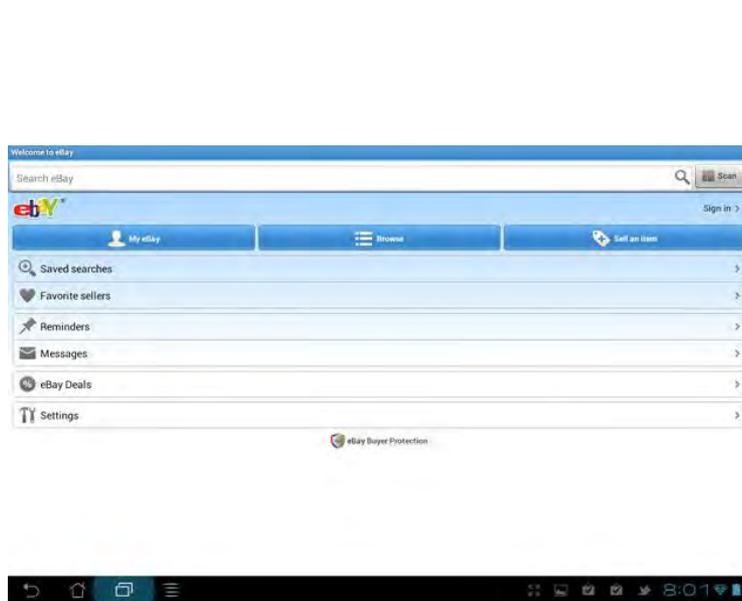
Primary platforms get better apps



ESPN ScoreCenter on Android and iOS tablets

Primary platforms

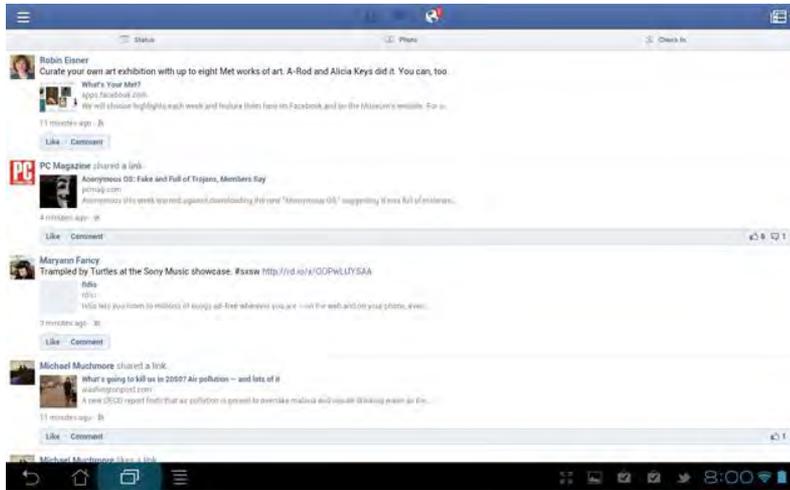
Primary platforms get better apps



eBay on Android and iOS tablets

Primary platforms

Primary platforms get better apps



Facebook on Android and iOS tablets

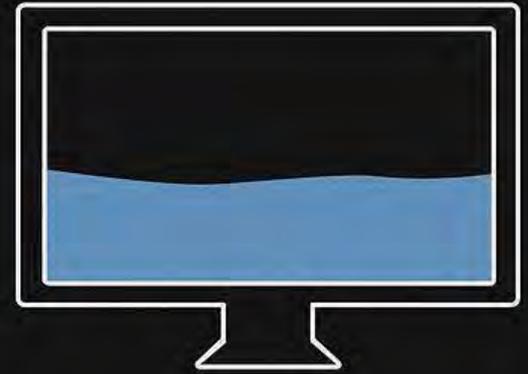
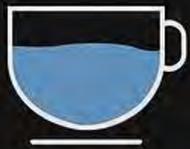


Industry trends

Web-like apps and app-like websites



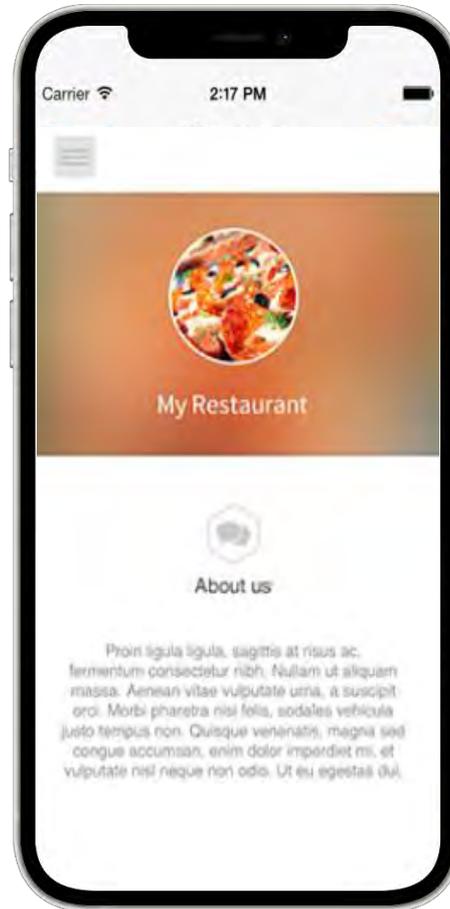
CONTENT IS LIKE WATER



“ You put water into a cup it becomes the cup.
You put water into a bottle it becomes the bottle.
You put it in a teapot, it becomes the teapot. ”

Industry trends

Web-like apps and app-like websites – Responsive Web Design

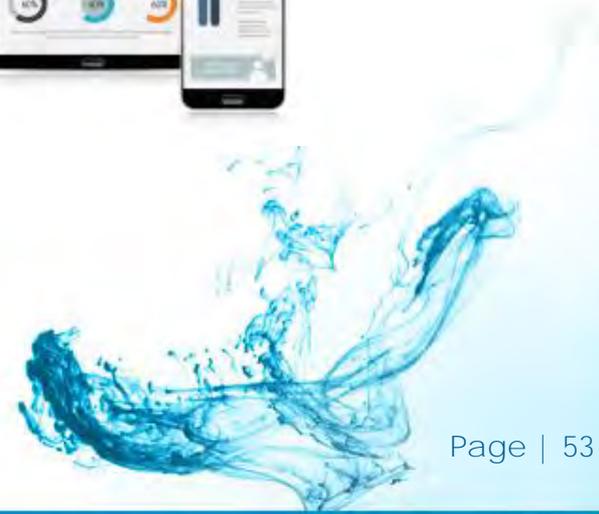


The modern app – cross-platform

Modern apps must be cross-platform and agile



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The Power of Simplicity

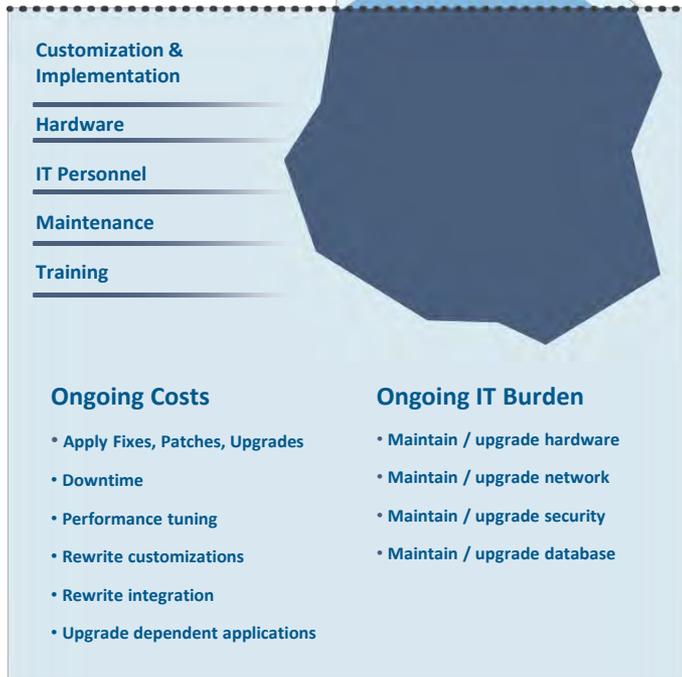


The modern app – the Cloud

Enterprises can focus more on their business than on IT

On-Premises

5-10%
Software Licenses



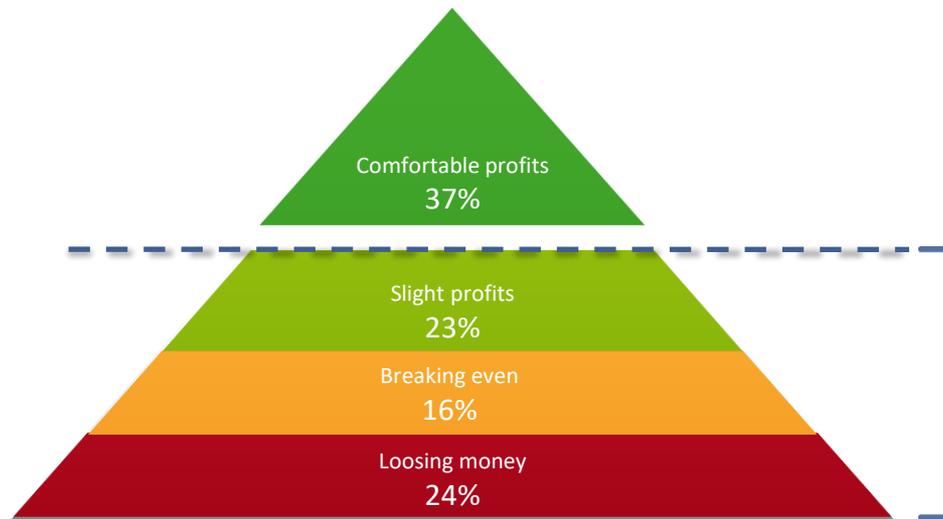
Cloud Computing

67%
Subscription Fees



Making money

63% of mobile app developers are struggling to make a profit



63% of developers struggle or lose money



FOUR Js
The Power of Simplicity

vision
mobile

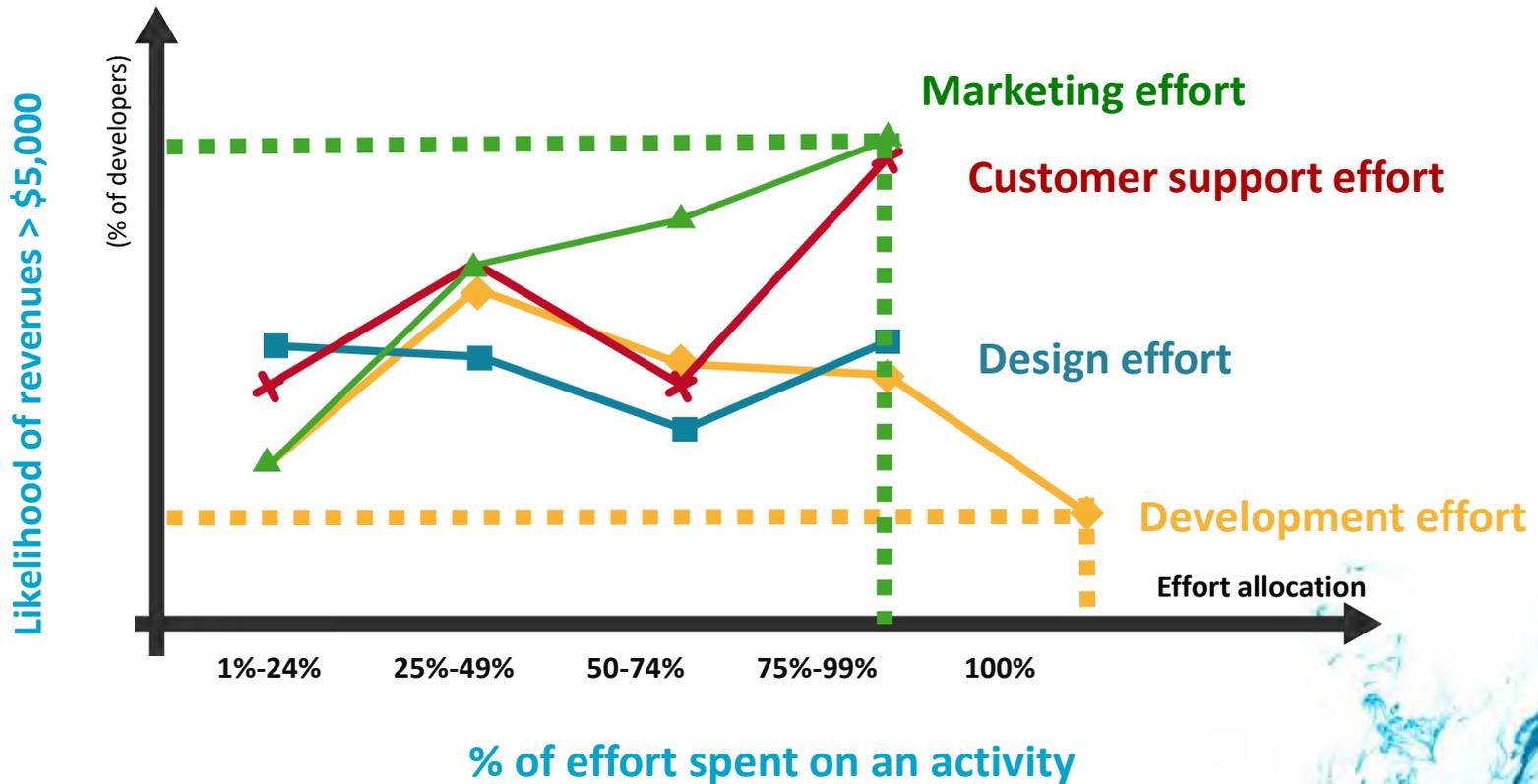
Developer Economics
App Economy Forecasts 2013-2016



Making money

The more time spent on development, the greater the chance of failure

The probability of making \$5,000 per app/month vs. effort



Products



FOUR Js
The Power of Simplicity



A 360° DEVELOPMENT PLATFORM



SERVERS



DESKTOPS



WEBTOPS



MOBILE DEVICES



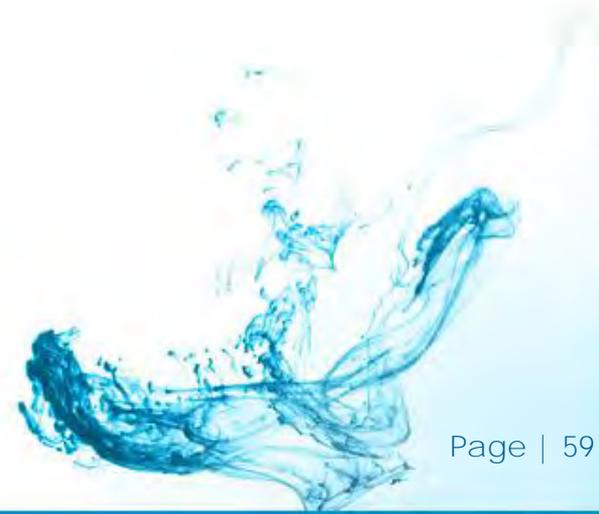
THE CLOUD



INTERNET OF THINGS

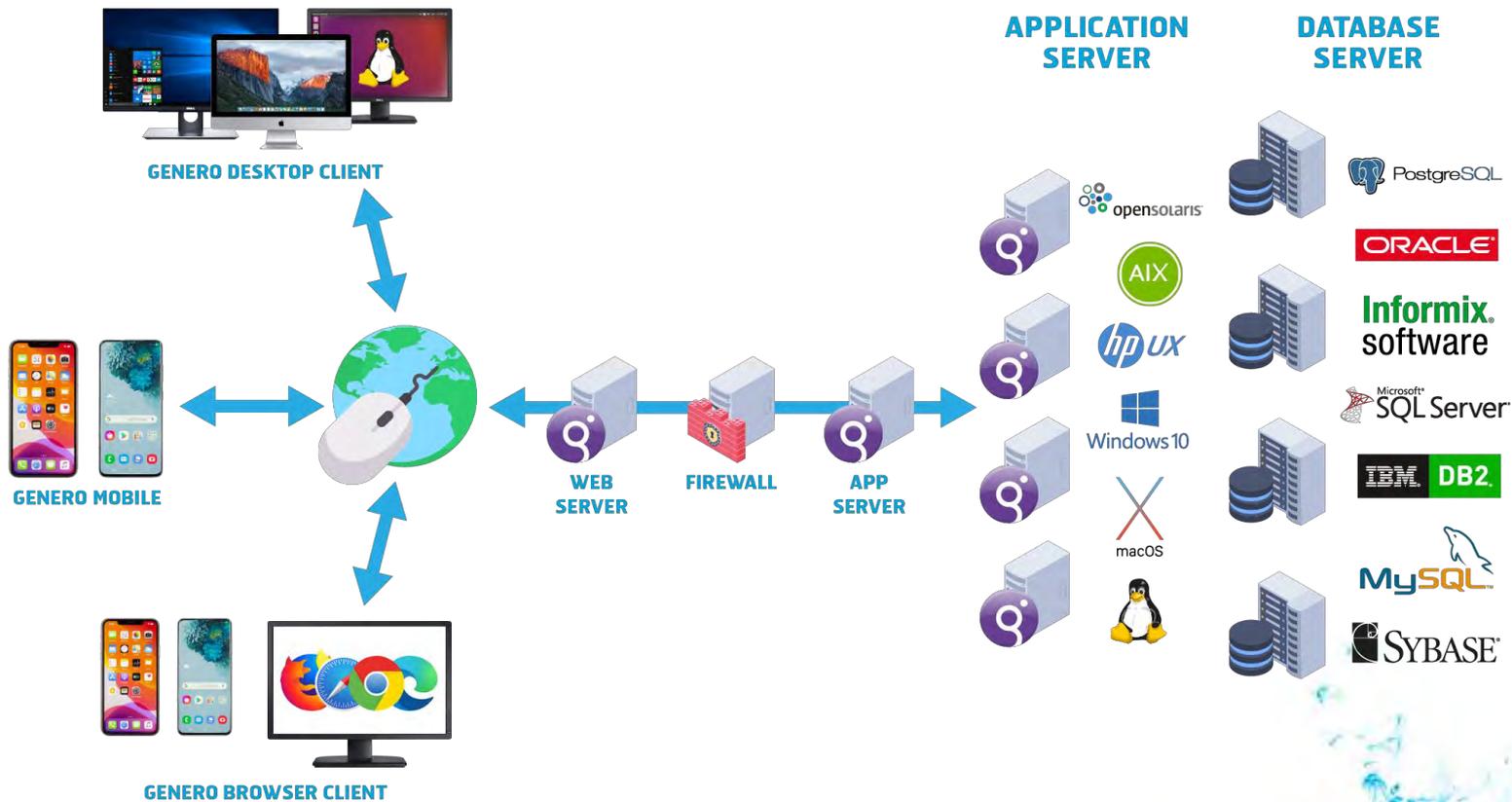
Our products

Cross-platform development framework, native or universal mobile apps,
embedded reports



Our products - Genero Enterprise

Cross-platform, server-side integration, security & scalability

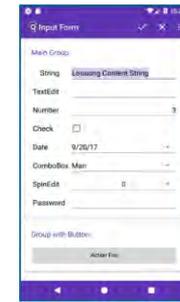
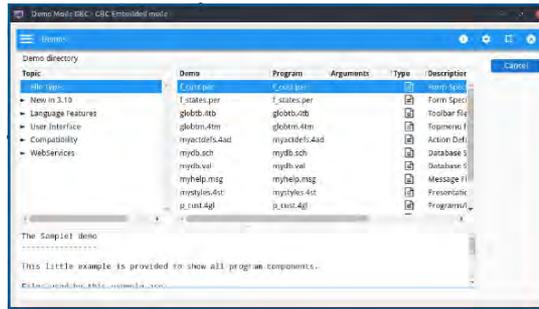
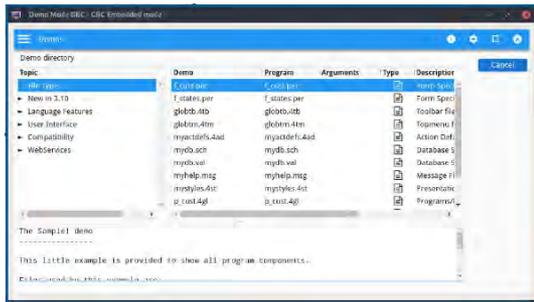


Universal Rendering

Version 3.20 – one single form rendition across all platforms



android



UNIVERSAL RENDERER

OS API

iOS API

Android API

VIRTUAL MACHINE PROTOCOL



Genero architecture

Integrates within the existing IT landscape

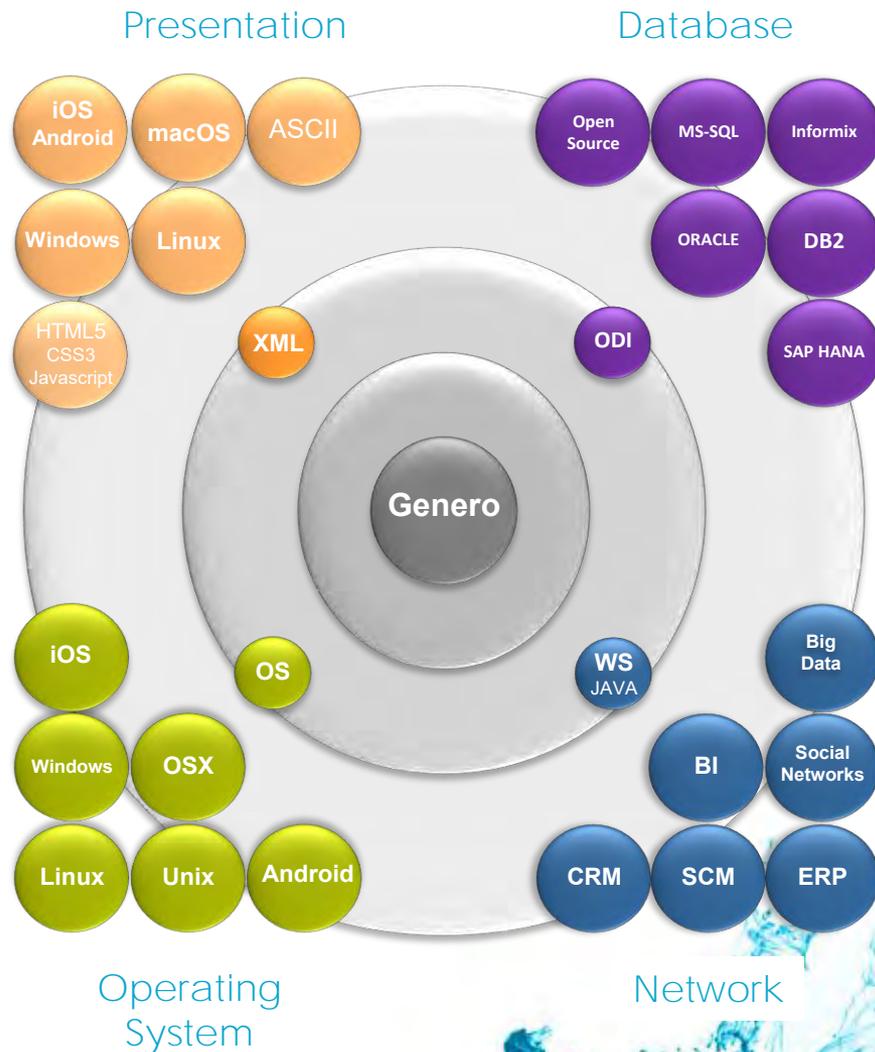
- **Lightweight app server**
- **Thin client, 'n' tier**
- **Abstraction layers**

Presentation

Data

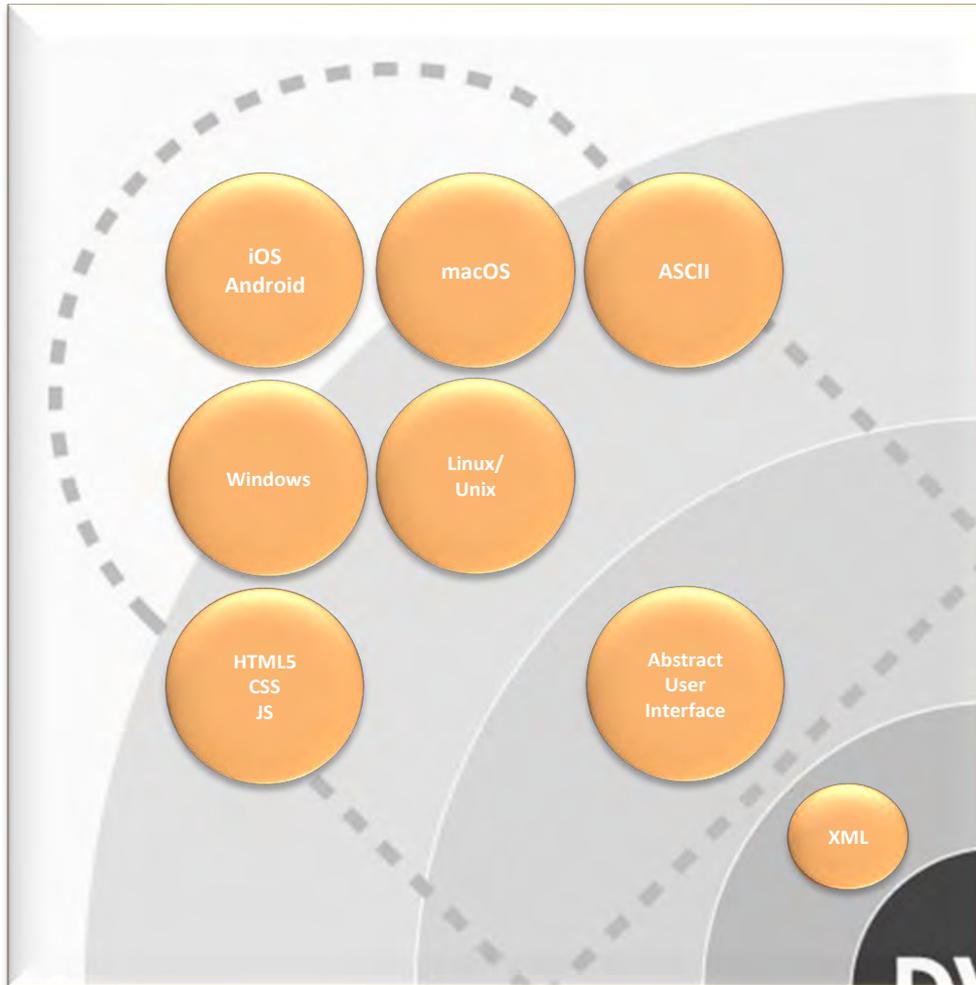
Network

OS



Flexible deployment

Genro Desktop Client



- Genero desktop client
- Configure rather than code



Portability

Abstract User Interface uses XML to render local user Interface

```
Layout (text = "Gift Certificates")
  VBox
    Group (text = "Certificate Details")
      Grid
      {
        Recipient: [a1 ]
        Sender: [f004 ]
        Certificate Amount: [f003 ]
        Merchant: [a0 ][merchant_name ]
        Message: [f005 ]
      }
    End --Grid
  End --Group
End --VBox

  Gift Cert #: [f000 ] Date Issued: [f002 ] Entered By: [f001 ]
}
End --Grid
End --VBox
End --Layout
```

Tables

```
merchant
gift_cert
```

Attributes

```
a1 = gift_cert.issued_to, upshift;
f004 = gift_cert.sender, upshift;
f005 = gift_cert.message_text, wordwrap;
f000 = gift_cert.cert_id, noentry;
f003 = gift_cert.cert_amt, include = (25.00, 50.00, 75.00, 100.00),
  comments = "Valid amounts include 25, 50, 75, or 100 dollars";
```

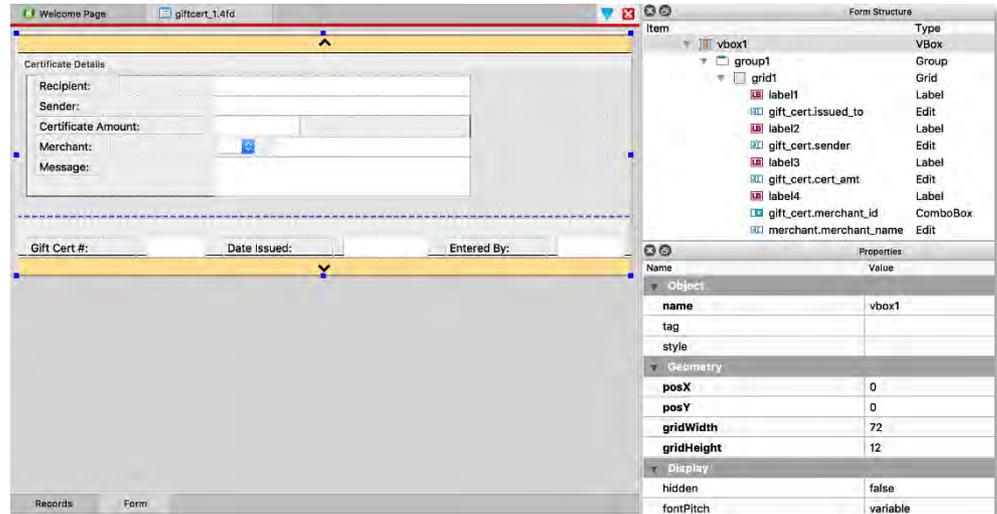
```
ComboBox a0 = gift_cert.merchant_id;
```

```
merchant_name = merchant.merchant_name, noentry;
f001 = gift_cert.logname, noentry;
f002 = gift_cert.cert_date, noentry;
```

End

Keys

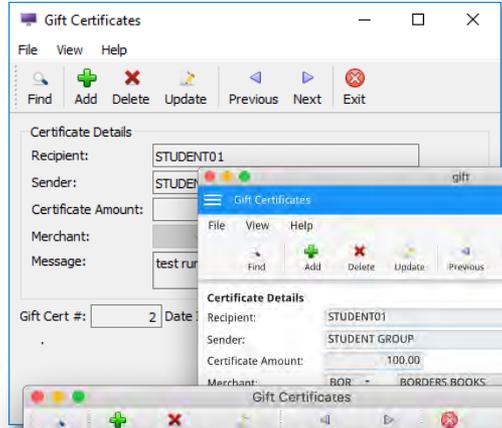
```
f8 = "Zoom"
```



Portability

Abstract User Interface uses XML to render local user Interface

```
<Form name="giftcert" text="Gift Certificates" width="78" height="4">
  <VBox>
    <Group text="Certificate Details">
      <Grid width="60" height="6">
        <Label text="Recipient:" width="10" posX="8" posY="0" />
        <Edit posY="0" posX="29" width="30" fieldId="0" colName="issued_to"
          sqlTabName="gift_cert" sqlType="CHAR(30)" shift="up" />
        <Label text="Sender:" width="7" posX="8" posY="1" />
        <Edit posY="1" posX="29" width="30" fieldId="1" colName="sender"
          sqlTabName="gift_cert" sqlType="CHAR(30)" shift="up" />
        <Label text="Certificate Amount:" width="19" posX="8" posY="2" />
        <Edit posY="2" posX="29" width="10" fieldId="4" colName="cert_amt"
          sqlTabName="gift_cert" sqlType="DECIMAL(8,2)"
          include="25.00|50.00|75.00|100.00" comment="Valid amounts include
          25, 50, 75, or 100 dollars" />
        <Label text="Merchant:" width="9" posX="8" posY="3" />
        <ComboBox posY="3" posX="29" width="5" fieldId="5"
          colName="merchant_id" sqlTabName="gift_cert" sqlType="CHAR(3)"
          required="1" notNull="1" />
        <Edit posY="3" posX="36" width="23" fieldId="6" colName="merchant_name"
          sqlTabName="merchant" sqlType="CHAR(20)" noEntry="1" />
        <Label text="Message:" width="8" posX="8" posY="4" />
        <TextEdit posY="4" posX="29" width="30" height="2" fieldId="2"
          colName="message_text" sqlTabName="gift_cert" sqlType="CHAR
          (200)" />
      </Grid>
    </Group>
    <Grid width="78" height="4">
      <VBox>
        <RecordView tabName="merchant">
        <RecordView tabName="gift_cert">
        <DefaultActions>
      </VBox>
    </Grid>
  </Form>
```

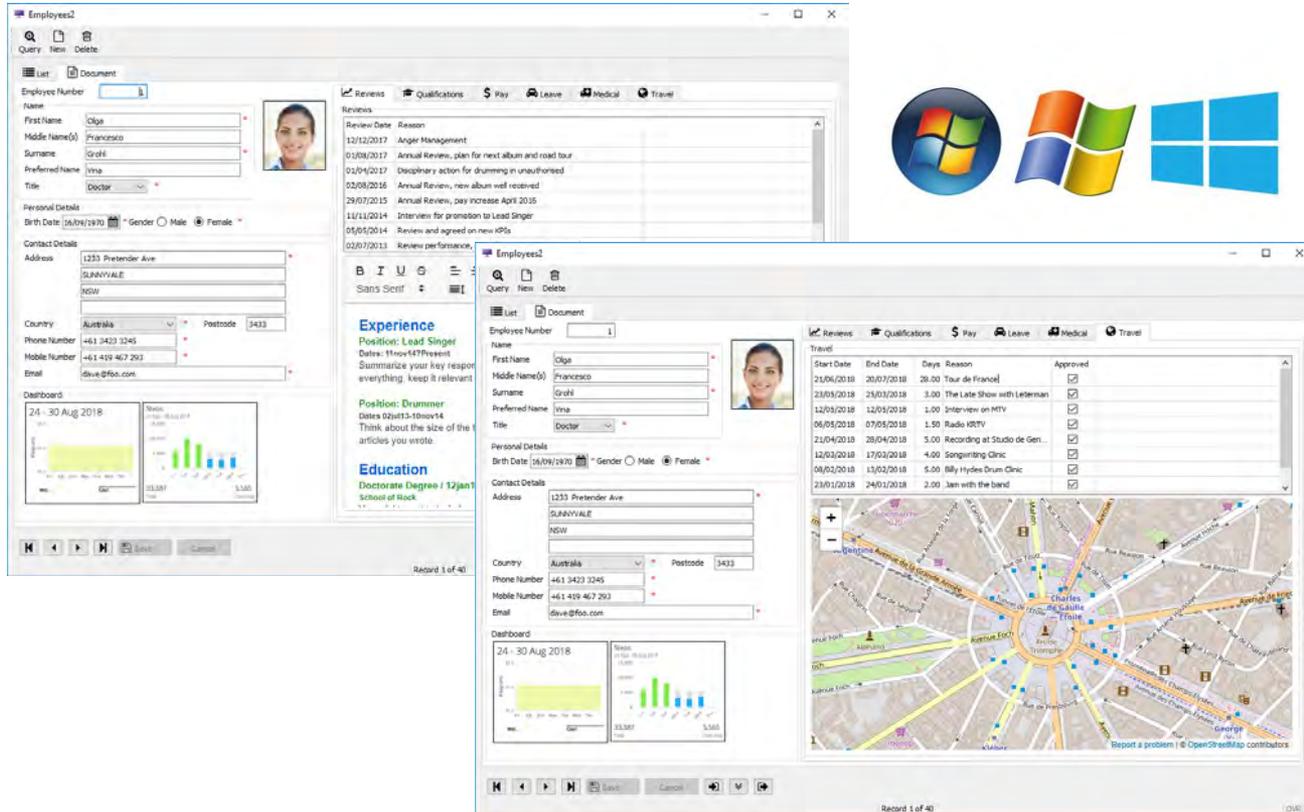


macOS



Flexible deployment

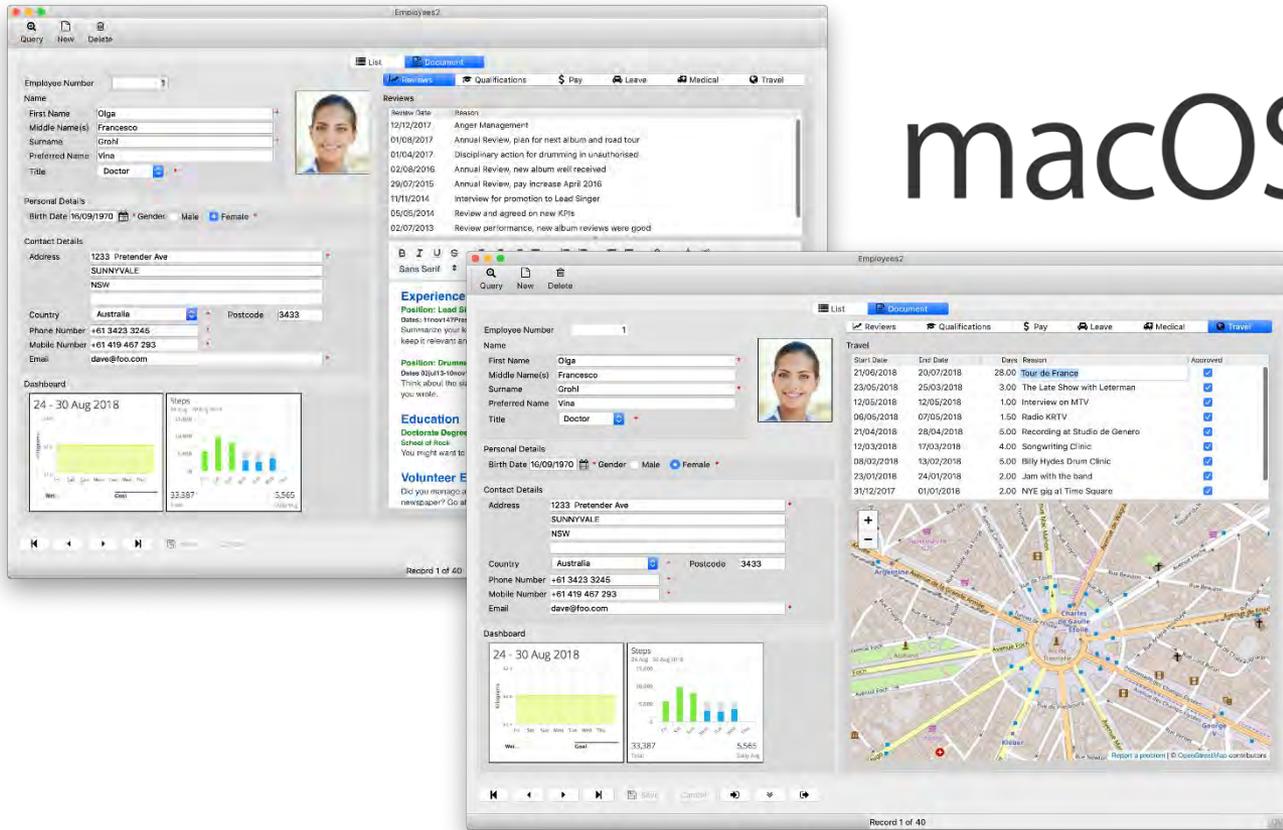
Genero Desktop Client – native GUI styles - Windows



Flexible deployment

Genero Desktop Client – native GUI styles - macOS

macOS



Flexible deployment

Genero Desktop Client – native GUI styles - Linux



The top screenshot displays the 'Employees2' application window. On the left, there's a sidebar with 'List' and 'Document' tabs. The main area shows a user profile for Olga Francesco Grohl, with fields for Name, Personal Details (Birth Date: 16/09/1970, Gender: Male), and Contact Details (Address: 1233 Pretender Ave, SUNNVALE, NSW, Australia; Phone: +61 3423 3245; Email: dave@foo.com). A dashboard at the bottom left shows a bar chart for 'Steps' from 24-30 Aug 2018, with values 33,387 and 5,565. A 'Reviews' table is visible on the right.

Review Date	Reason
12/12/2017	Anger Management
01/08/2017	Annual Review, plan for next album and road tour
01/04/2017	Disciplinary action for drumming in Unauthorised
02/08/2016	Annual Review, new album will be received
29/07/2015	Annual Review, pay increase April 2016
11/01/2014	Interview for promotion to Lead Singer
05/05/2014	Review and agreed on new Ktis
02/07/2013	Review performance, new album reviews were good

The bottom screenshot shows the same application window with a 'Travel' table and a map view. The 'Travel' table lists various trips with start/end dates, days, reasons, and approval status.

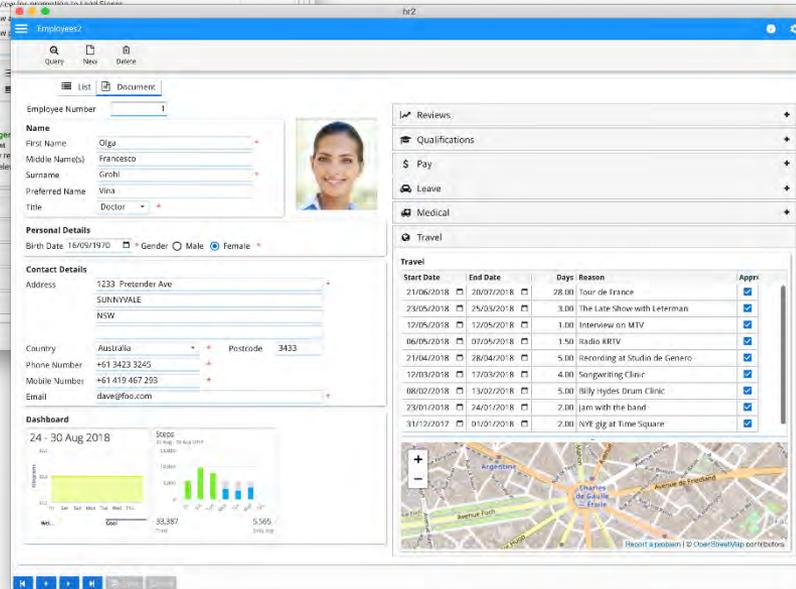
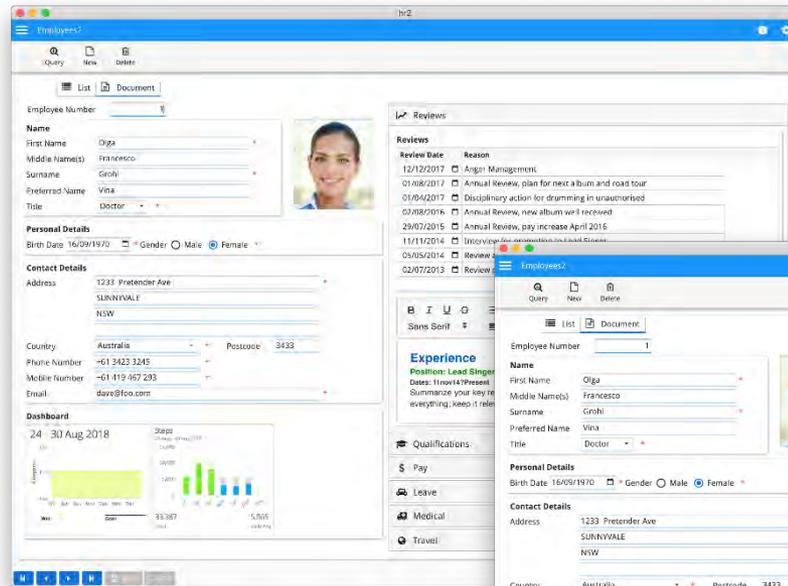
Start Date	End Date	Days	Reason	Appn
21/06/2018	20/07/2018	28.00	tour de France	✓
23/05/2018	25/03/2018	3.00	The Late Show with Letterman	✓
12/05/2018	12/05/2018	1.00	interview on MTV	✓
06/05/2018	07/05/2018	1.50	Radio KRTV	✓
21/04/2018	28/04/2018	5.00	Recording at Studio de Genero	✓
12/03/2018	17/03/2018	4.00	Songwriting Clinic	✓
08/02/2018	13/02/2018	5.00	Billy Hydes Drum Clinic	✓
23/01/2018	24/01/2018	2.00	Jam with the band	✓
31/12/2017	01/01/2018	2.00	NVE gig at Time Square	✓

The map view shows a street map of Sunnyside, NSW, Australia, with a location marker and a 'Report a problem' link.



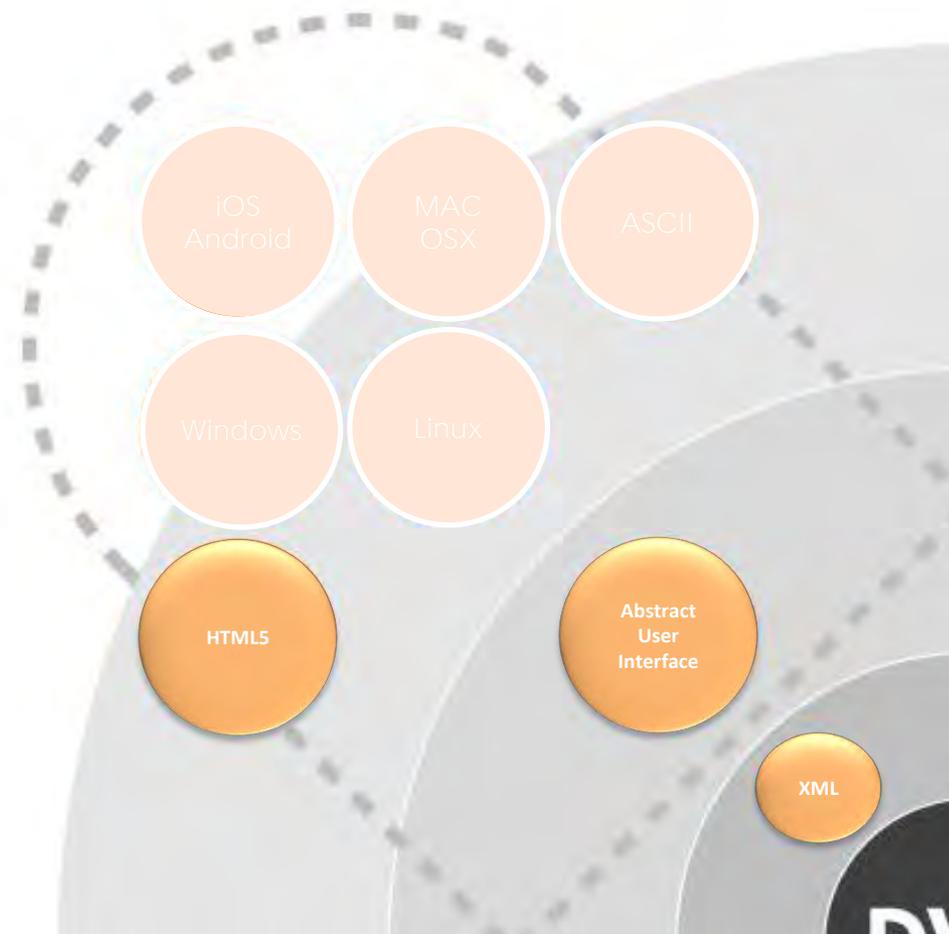
Flexible deployment

Genero Desktop Client – native GUI styles - browser



Flexible deployment

Genero Browser Client



- Genero Browser Client (GBC)

HTML5

XML 'snippets'

Infinite customization

Mobile devices

- Supports recent browsers



- Rich Internet Apps



Flexible deployment

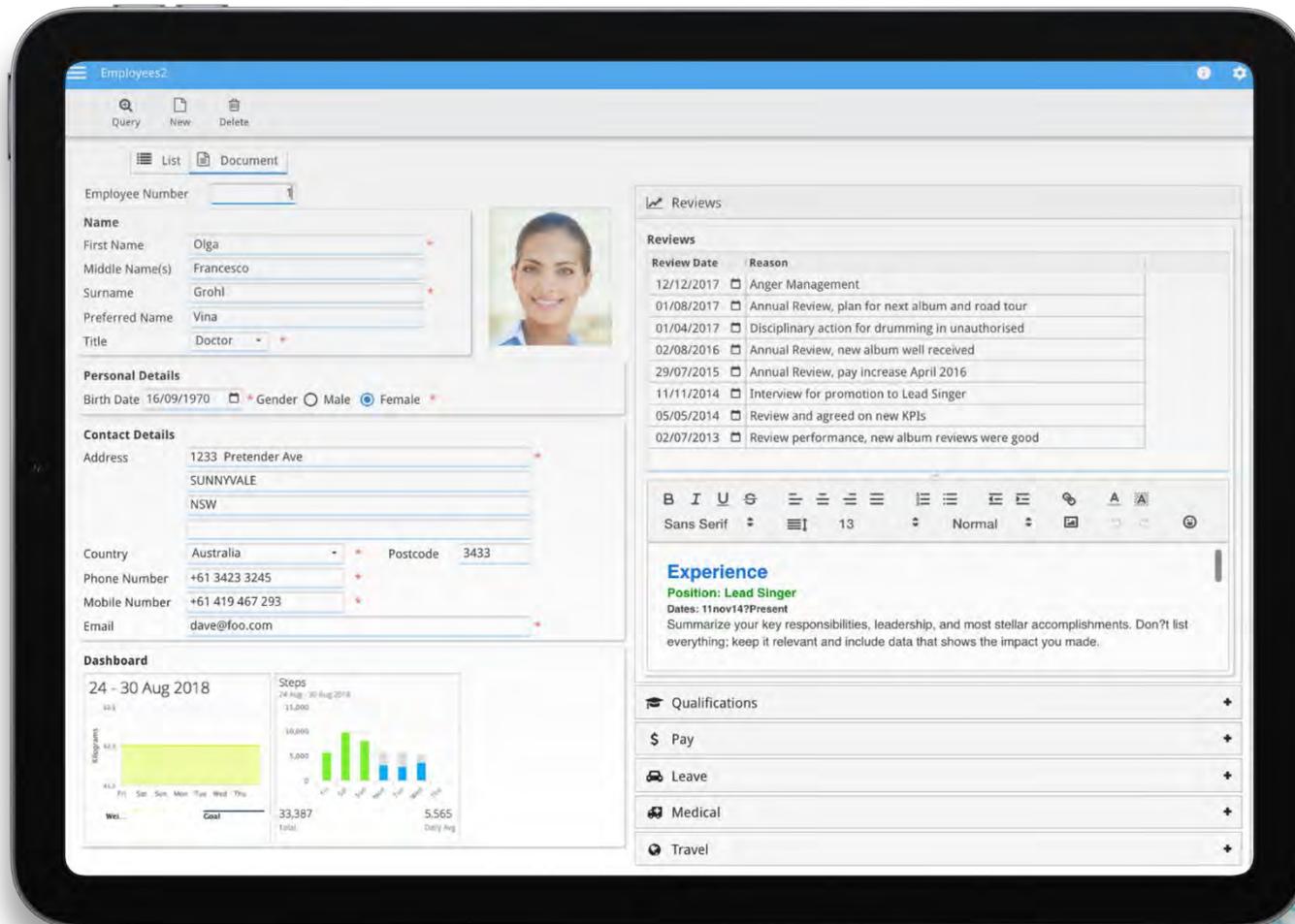
Genero Web Client

- Browser support in mobile devices
 - Safari Mobile & HTML5 w/ Javascript customization



Flexible deployment

Genero Browser Client



Genero Mobile



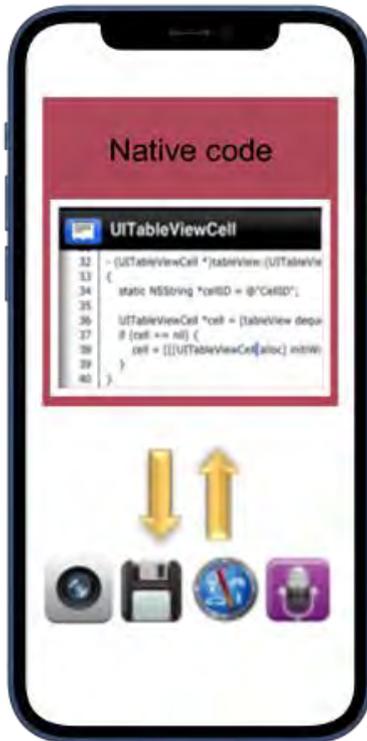
FOUR Js
The Power of Simplicity



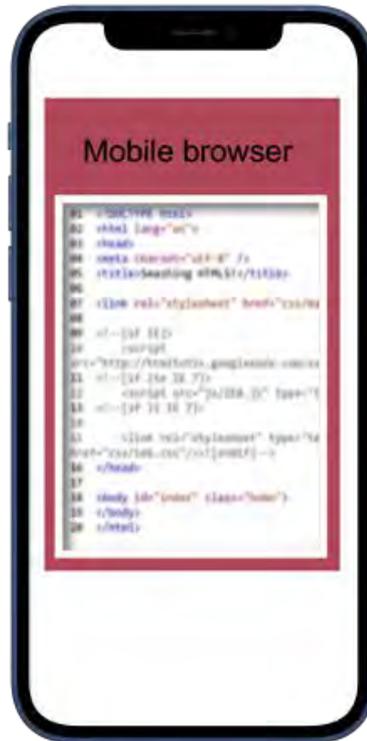
Cross Platform solutions

Mobile Application types

Native



HTML5

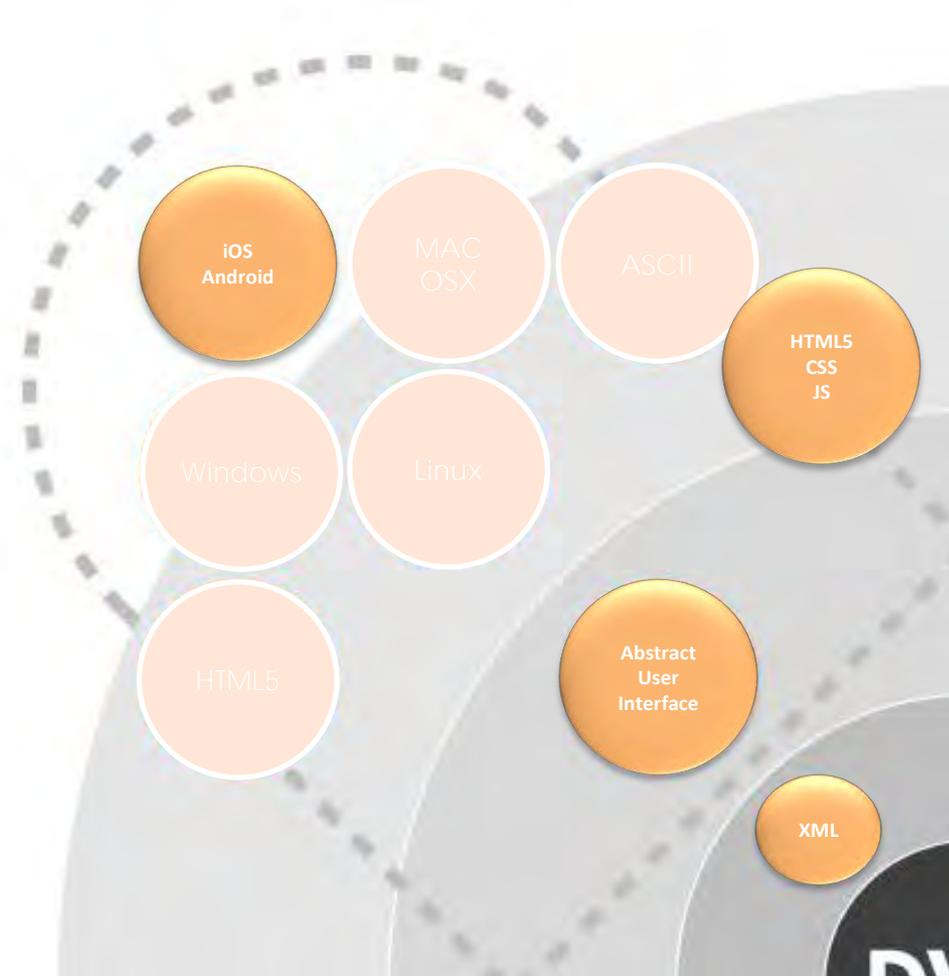


Hybrid



Flexible deployment

Genero Mobile



- Cross-platform
iOS, Android = 98%
market opportunity
- **Native 'look & feel'**
- Online mode
- Offline mode
- Embedded SQLite
- RESTful Web services
JSON
SOAP
- UTF-8









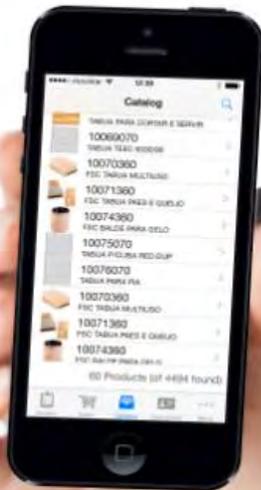
10048070
10048232
10049370
10050370
10051370
10052370
10054370
10055100
10057100
10057920
10058360
10060100
10060730
10061100
10061100
10065920
10066100
10069070
10070380
10071360
10074960
10075070
10076070

FIG. TABUA PAIS E QUELJO

Comercial description
Tabua para servir e cortar paos e queijo

Technical and size options
Complemento 1 Tabua 2 Abuleira mackia curvada 3 Com acabamento sustentavel madeira a base agua, ecologicamente correta, proporcionalmente duravel e protegida ao produto. Por ser reciclar, melhora as bases de madeira e dar uma

Complemento (mm)
Largura (mm)
Alura (mm)
Diameter (cm)
Price
Cliente

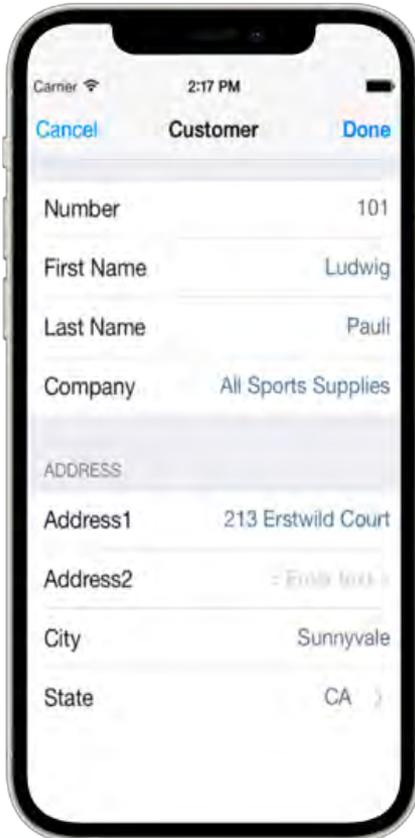


Write once, deploy 'everywhere'

Developers don't need to choose - one source code reaches the entire market

14

android



```
private function editCustomer(num)
    define num like customer.customer_num
    let int_flag = false

    -- Fetch customer record from database table
    select *
    into customer.*
    from customer
    where @customer_num == num

    -- Get input from form for customer record
    input by name customer.* without defaults
    on action zoom infield state
        let customer.state = states.getState(customer.state)
        display by name customer.state
    end input

    -- Update customer record to database table or redisplay
    if not int_flag then
        update customer
        set customer.* = customer.*
        where @customer_num = num
    else
        select *
        into customer.*
        from customer
        where @customer_num == num
        display by name customer.*
    end if
end function
```



Write once, deploy 'everywhere'

Reduces need to learn native APIs

➤ Native widgets

```
public function showForm()  
  
  open window wForm with form "simple2"  
  
  let pEdit = 3  
  let pDate = today  
  
  input by name pEdit, pCheck, pDate without defaults  
    on action foo  
      display "foo"  
    on change pCheck  
      display "ON CHANGE pCheck:", pCheck  
    on action bar  
      display "bar"  
  end input  
  
  close window wForm  
  
end function
```

Abstract form description

Main Group

Label

Edit

Check

Date 19.09.13

June	16	2016
July	17	2011
August	18	2012
September	19	2013
October	20	2014
November	21	2015
December	22	2016

Modifiez la date :

jun	31	2012
jul	01	2013
aoû	02	2014

Terminé

Native rendering

Write once, deploy 'everywhere'

Reduces need to learn native APIs

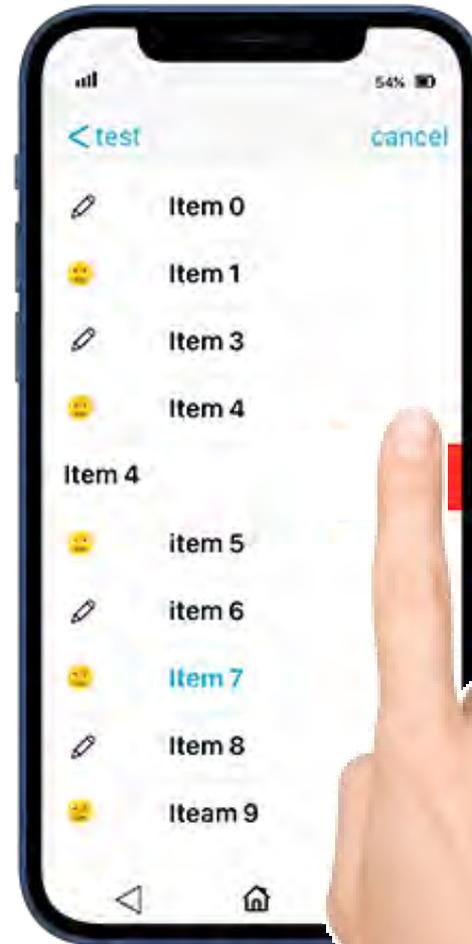
```
private function showlist()
  define arr dynamic array of record
    a string,
    b string
  end record
  define i int

  open window f with form "simple"

  --populate array
  for i = 1 to 100
    let arr[i].a = sfmt("Item %1", i-1)
    let arr[i].b = iif(i mod 2 == 0, "smiley", "pen")
  end for

  display array arr to arr.* attributes(unbuffered)
  on delete
    display "deleted element at index:", arr_curr()
  end display

  close window f
end function
```



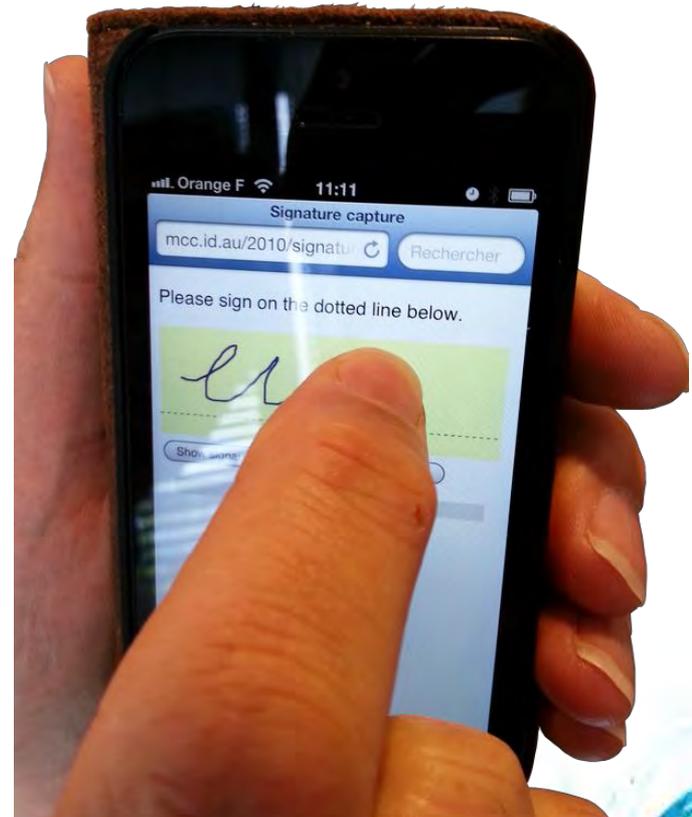
Web components

Tectonic shift for web development - vast library of 3rd party components

➤ Embed Web components into native mobile apps

Eg. Signature capture

<http://mcc.id.au/2010/signature.html>



Web components

Tectonic shift for web development - vast library of 3rd party components

- Embed Web components into native mobile apps

Eg. Barcode scanners & sleds



Cordova API

Accelerometer

Tap into the device's motion sensor.

Camera

Capture a photo using the device's camera.

Capture

Capture media files using device's media capture applications.

Compass

Obtain the direction that the device is pointing.

Connection

Quickly check the network state, and cellular network information.

Contacts

Work with the devices contact database.

Device

Gather device specific information.

Events

Hook into native events through JavaScript.

File

Hook into native file system through JavaScript.

Geolocation

Make your application location aware.

Globalization

Enable representation of objects specific to a locale.

InAppBrowser

Launch URLs in another in-app browser instance.

Media

Record and play back audio files.

Notification

Visual, audible, and tactile device notifications.

Splashscreen

Show and **hide** the applications splash screen.

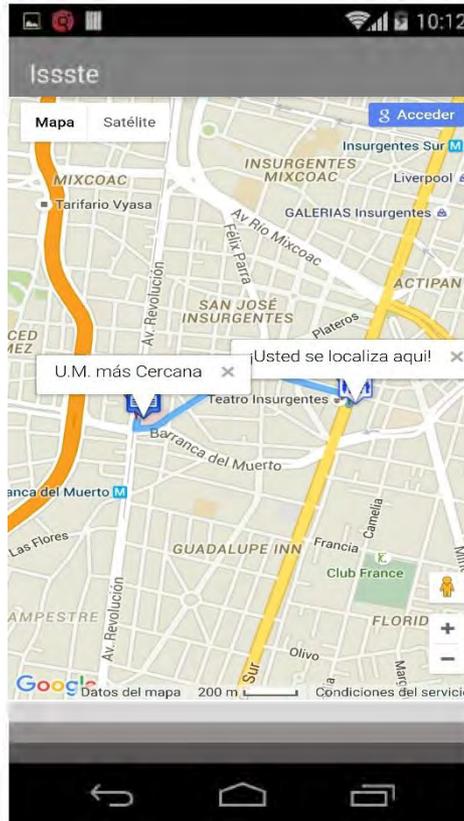
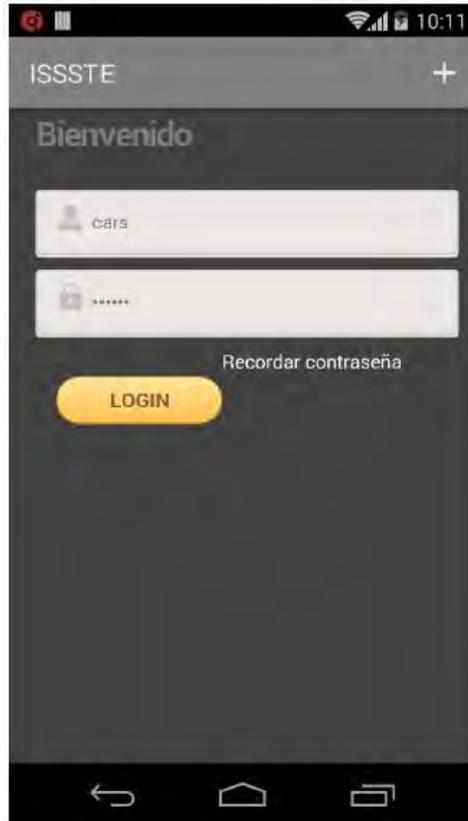
Storage

Hook into the devices native storage options.



User experience – streamlining processes

Exploiting device innovation



Digital transformation

- On-demand payslip
- Linked to tax department
- Real-time account status
- 900,000 payslips downloaded in 2 days
- 800 reports/second
- Sub-second response times
- 1 Linux server
- Taxpayer savings of \$ millions

22° 86% 1:02 PM

issstnet2.issste.gob.mx:8080

MÉXICO
GOBIERNO DE LA REPÚBLICA

SELECCONE EL TIPO

RIESGOS DE TRABAJO
 EDAD Y TIEMPO

CANCELAR

BUSCAR

DATOS DE PENSIÓN

Número de Pensión {

Código de Deudo {

Año {

Meses {

Este sistema se ve mejor en Chrome, Firefox
Requiere que se permitan ventanas emergentes

Digital transformation

- On-demand payslip
- Linked to tax department
- Real-time account status
- 900,000 payslips downloaded in 2 days
- 800 reports/second
- Sub-second response times
- 1 Linux server
- Taxpayer savings of \$ millions

COMPROBANTE DE PAGO		RC61090			GONZALEZ CARMEN VERA SALAZAR					
ISSSTE		R.F.C. DEL (EX) TRABAJADOR			NOMBRE DEL PENSIONADO					
MES DE PAGO	NUMERO PENSION	LOCALIDAD PAGO	LUGAR PAGO	CODIGO POSTAL	CODIGO DEUDO	PENSION ACTUAL	CLAVE RAMO			
NOV-2014	03011	3103	008	5070	0	101	637			
PERCEPCIONES			DEDUCCIONES							
CPTO.	DESCRIPCION	IMPORTE	CPTO.	DESCRIPCION	IMPORTE					
001	PENSION	\$19,572.30	057	PRESTAMO PERSONAL	\$3,913.22					
002	BONO DESPENSA	\$100.00	059	CREDITO HIPOTECARIO FOVISSSTE	\$5,871.69					
003	PREVISION SOCIAL MULTIPLE	\$120.00	074	SEG. DE VIDA INST. 18 MESES ME	\$137.01					
			093	SEG. DAQOS FOVISSSTE	\$17.00					
ISSSTE ELIMINA VIGENCIA DE DERECHOS PRESENCIAL NO NECESITA PASAR VIGENCIA, NI ACCION ALGUNA										
GENERADO DESDE LA OFICINA VIRTUAL				FECHA DE INICIO DE PENSION	CPTO	DESCTO	PLAZO	CPTO	DESCTO	PLAZO
Sello electrónico de validez oficial				16/08/2009	57	1	24	59	15	2
2105YK - 1H816019				\$19,792.30		\$9,938.92		\$9,853.38		
HTTPS://OFICINAVIRTUAL.ISSSTE.GOB.MX				PERCEPCIONES		DEDUCCIONES		NETO A PAGAR		



User experience – streamlining processes

Exploiting device innovation – LVMH Chandon Bogedas



Budbreak

Development of
leaves and infl...

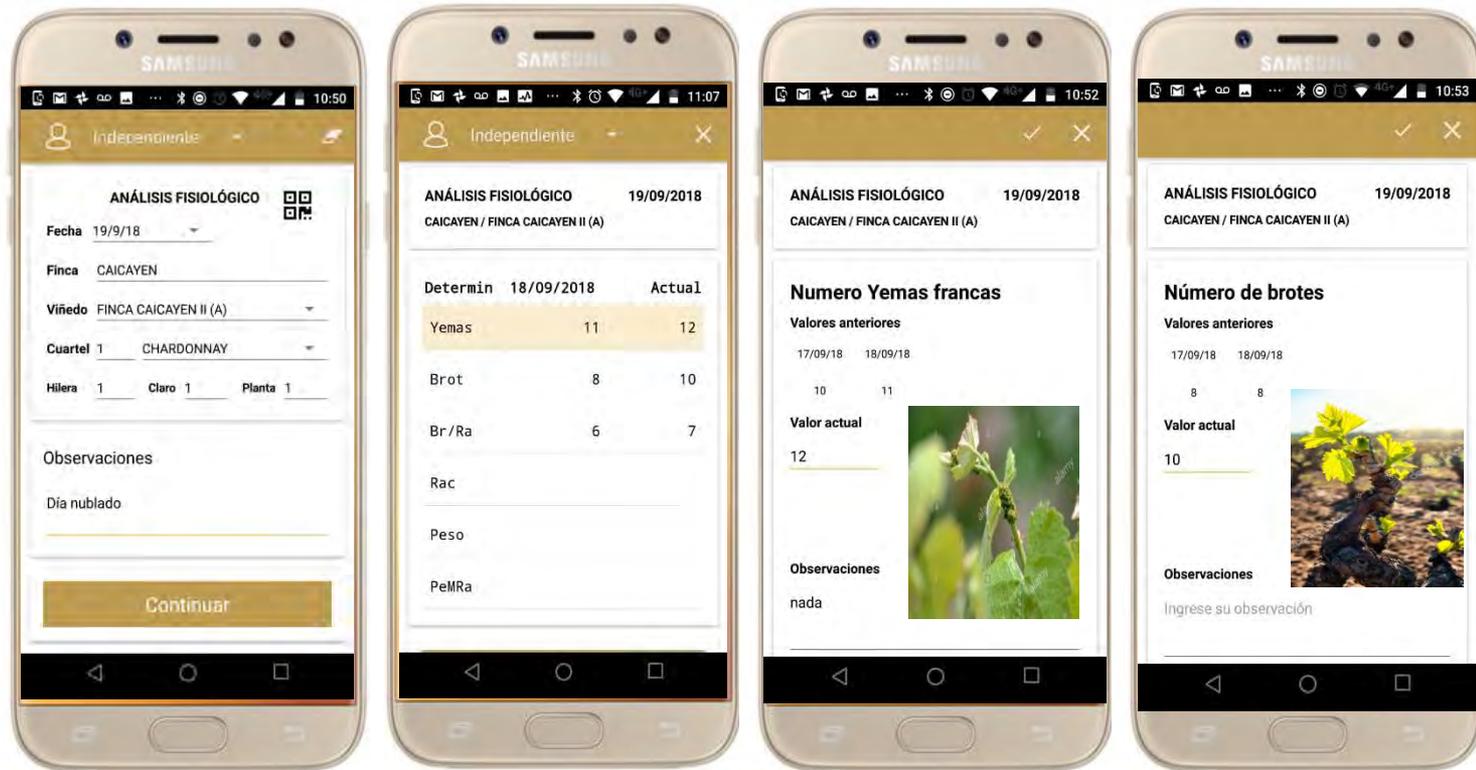
Flowering

Fruit development

Ripening

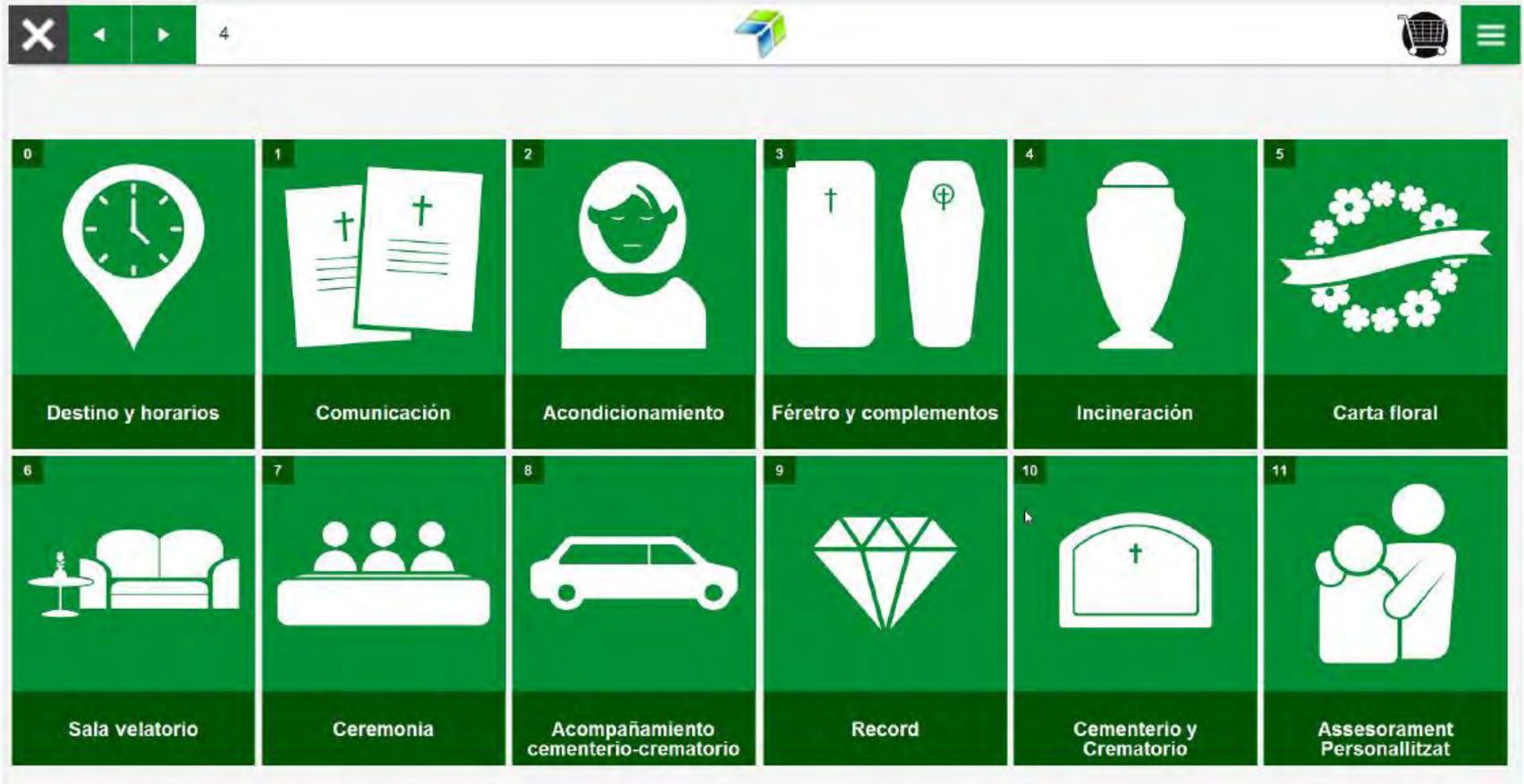
User experience – streamlining processes

Exploiting device innovation – LVMH Chandon Bogedas



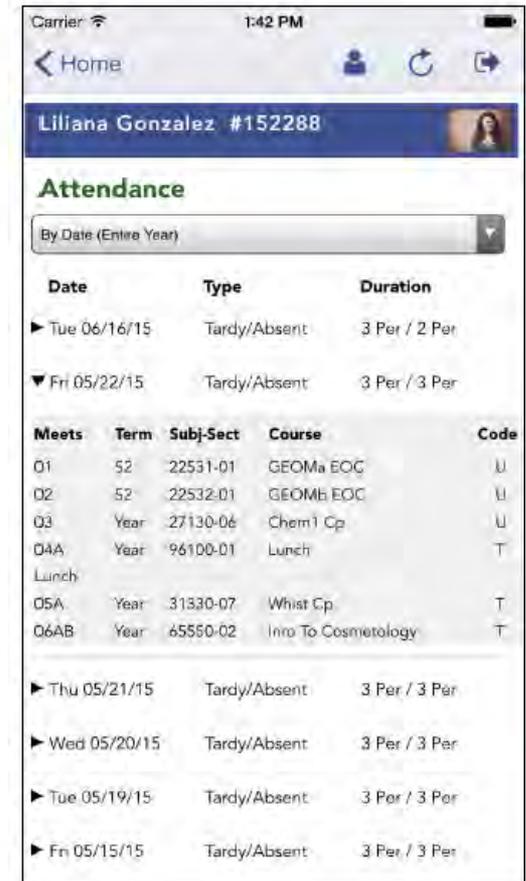
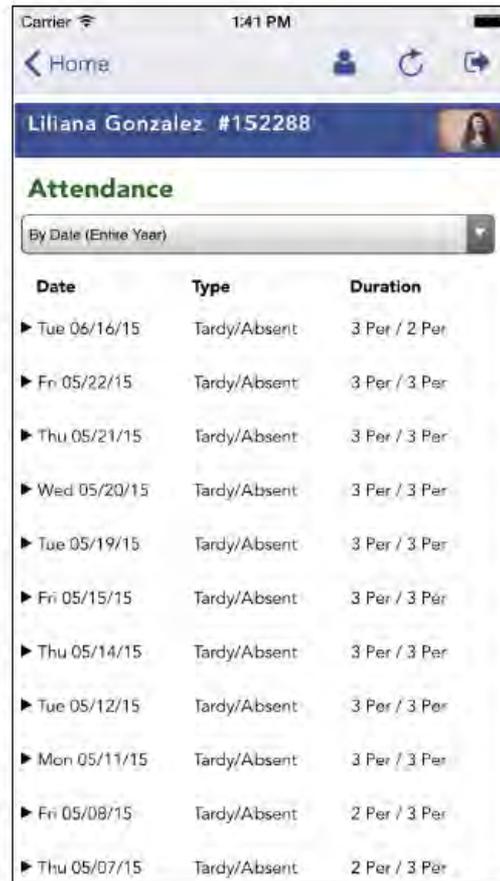
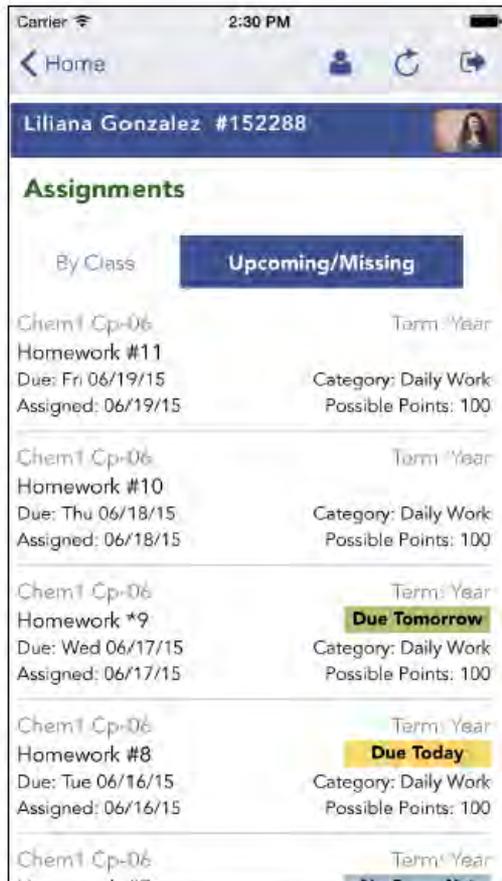
User experience – streamlining processes

Exploiting device innovation



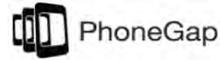
User experience – streamlining processes

Exploiting device innovation

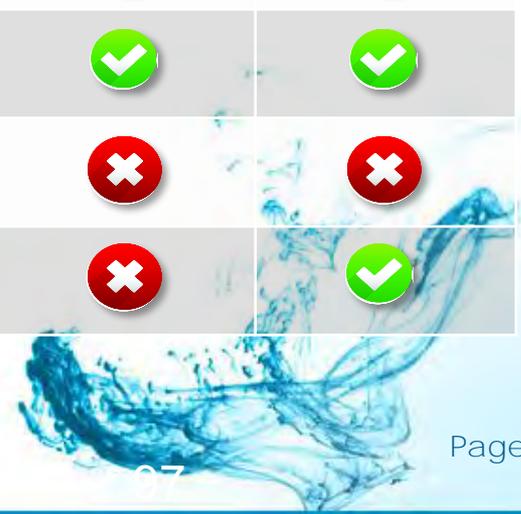


Genero Mobile

Competitive analysis



	Genero mobile	Xamarin	PhoneGap	Appcelerator	Kony
Native UI	✓	✓	✗	✓	✓
Abstract OS API	✓	✗	✓	✓	✓
Abstract form designer	✓	✗	✗	✗	✓
Single code base	✓	✗	✗	✗	✓
Debug on device	✓	✓	✗	✓	✓
Developer mode	✓	✗	✓	✗	✗
IDE	✓	✓	✗	✓	✓
Server-centric apps	✓	✓	✗	✗	✗
Ease-of-use	✓	✗	✗	✗	✓



Genero Studio

Low-code development



FOUR Js
The Power of Simplicity



Genero Studio IDE



Debug apps



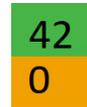
Profiler



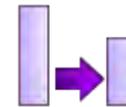
Linter



Testing



Coverage



Code Analyzer



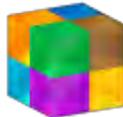
Trace



SQL Debug



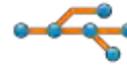
Edit code



Manage Projects



Files & Dirs



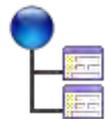
Team work (SCM)



Diff



Help



Business App
Modeling



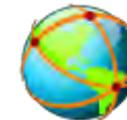
DB Meta schema



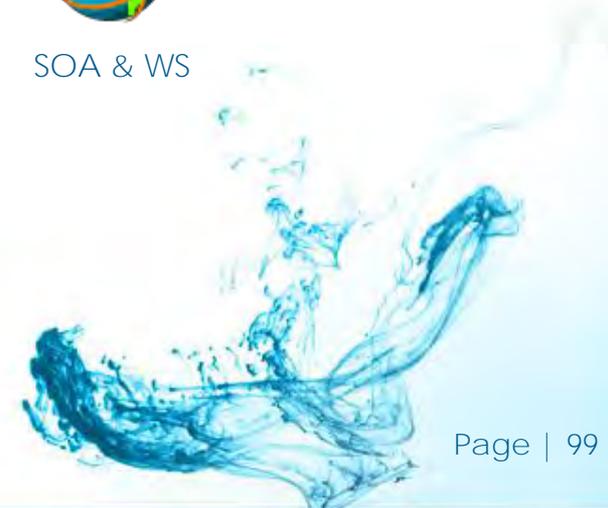
Design Forms



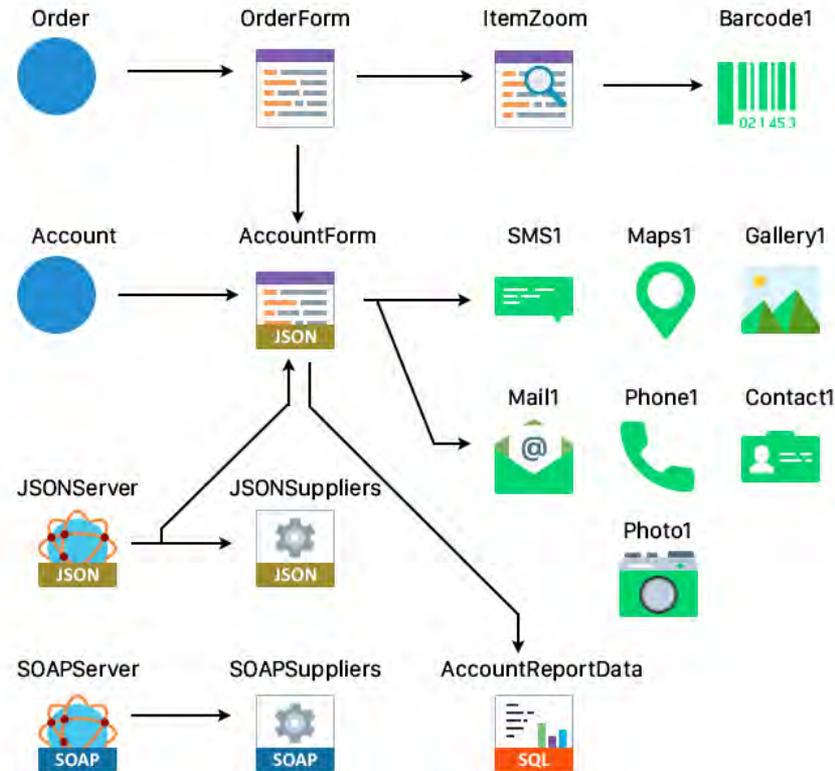
Create Reports



SOA & WS



Flow diagram



High level flow

Applications

Forms

Reports

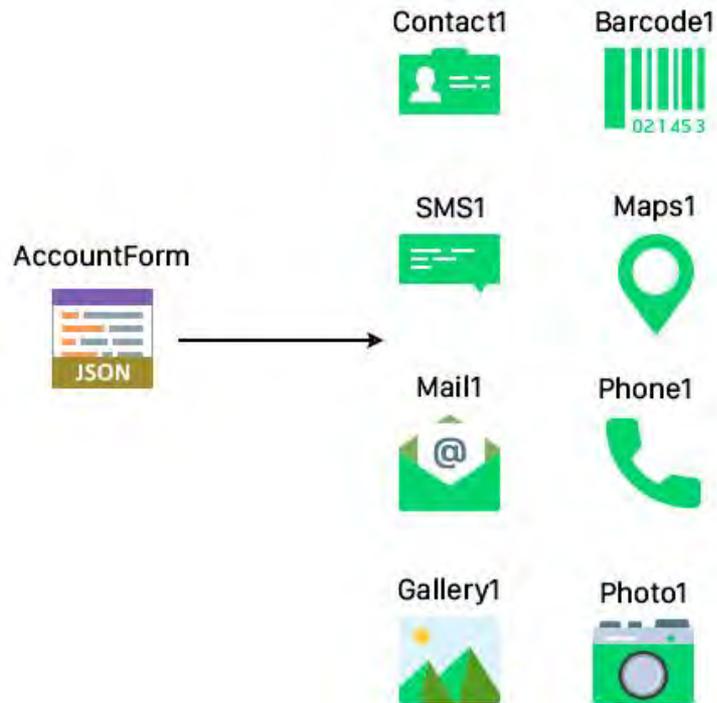
Services (JSON, SOAP)

Device Apps

Specs

Top-down design

Mobile device specific



Integrate with native device apps

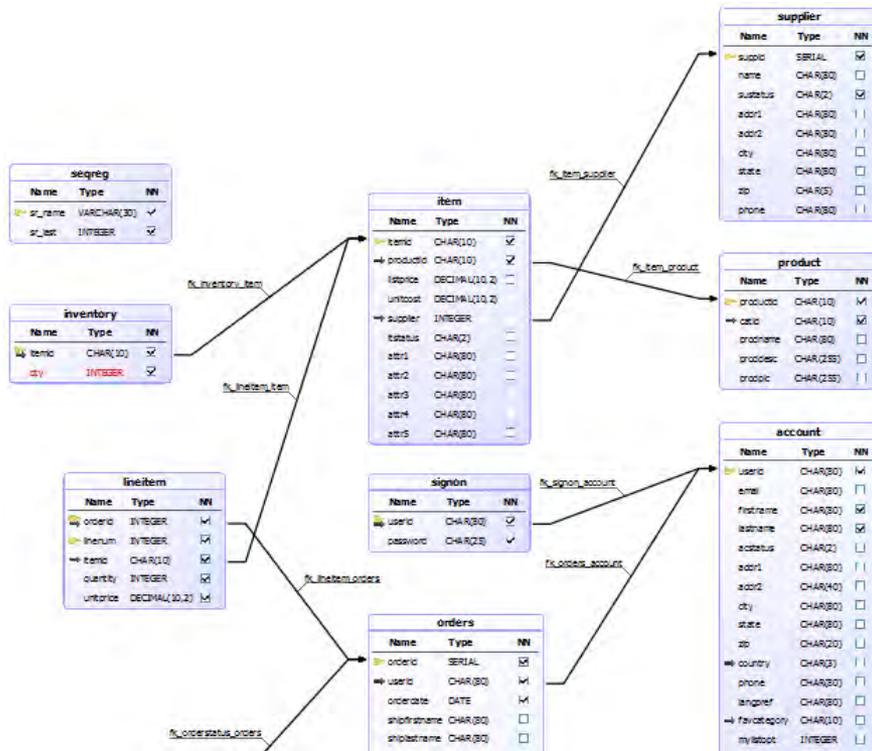
Behaviour

Map fields to apps

Code

Complex field mapping
Other frontCalls()

Database Meta-Schema



Database schema
Centralized Meta-Info

Fields labels

Prefered Widget

Cascade delete

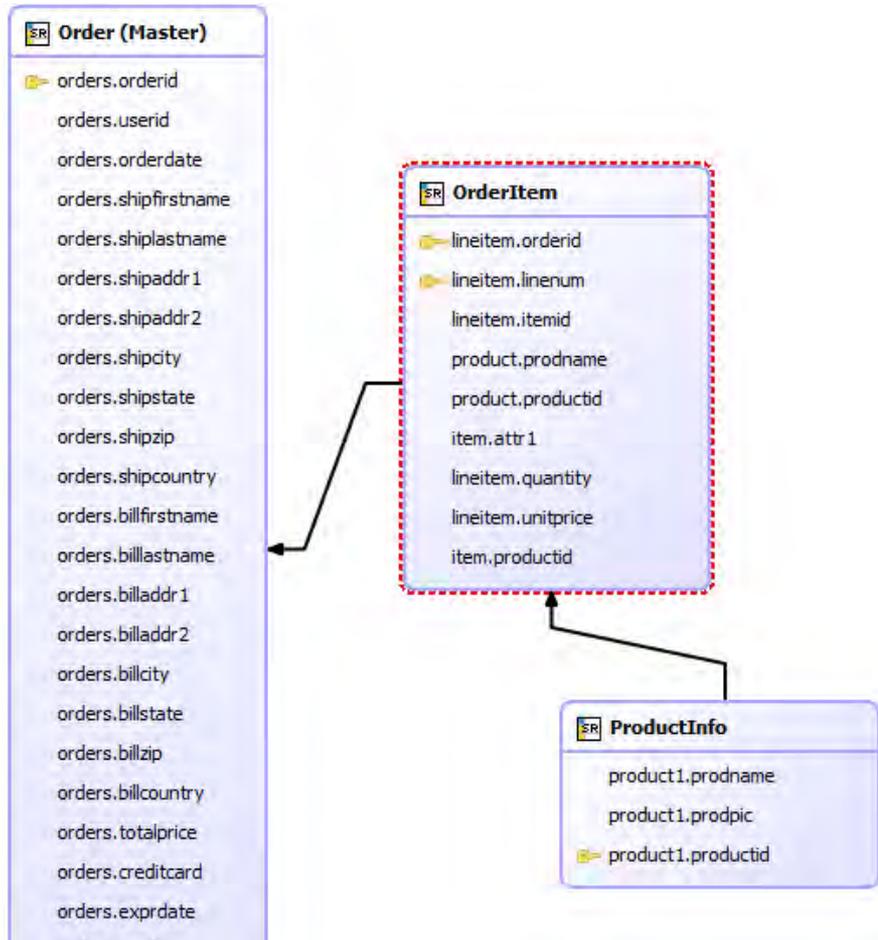
...

Data integrity

Constraints

Validation code

Datasets for Forms, Reports, Services



Data queries
Linked data sources
Behaviour
Field lookups
CRUD functionality
Report interfaces
Service interfaces
...

Coded rules

UI Design

The screenshot shows a web form with a yellow header and footer. The form is divided into sections by a blue dashed line. The top section contains four input fields: 'Order No', 'Order Date' (with a calendar icon and the date '14.04.16'), 'User Id', and 'Origin Application'. Below this is a tabbed interface with 'Billing', 'Shipping', and 'Credit Card' tabs. The 'Billing' tab is active, showing a form with fields for 'First Name', 'Last Name', 'Address', 'City', 'State', 'Zip Code', and 'Country'. Below the form is a table with six columns: 'Number', 'Item Id', 'Product Name', 'Attribute', 'Quantity', and 'Unit Price'. Each cell in the table contains the text 'Edit'.

Number	Item Id	Product Name	Attribute	Quantity	Unit Price
Edit	ButtonEdit	Edit	Edit	Edit	Edit
Edit	ButtonEdit	Edit	Edit	Edit	Edit
Edit	ButtonEdit	Edit	Edit	Edit	Edit
Edit	ButtonEdit	Edit	Edit	Edit	Edit
Edit	ButtonEdit	Edit	Edit	Edit	Edit

Look & Feel

Containers

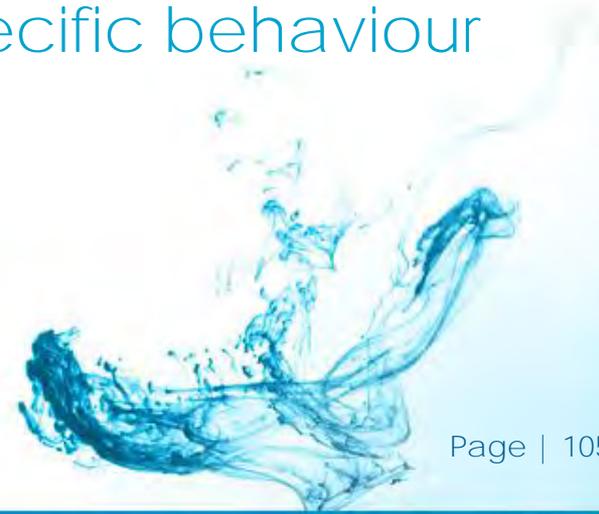
Widgets

Layouts

Hidden field (Phantom)

Code

UI Specific behaviour



Report design

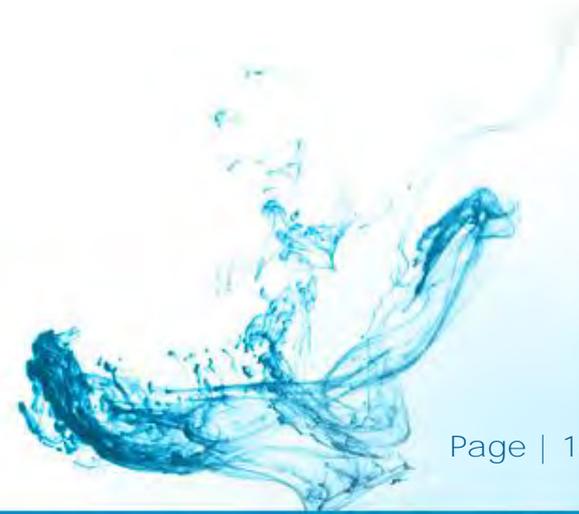
Line Item Number	Product	Provider	Quantity	Unit Price
			Carried forward:	6728.76
Budget:	Prod Budget:		Carried forward:	6728.76
5.0	02/20/2014		Carried forward:	6728.76
1 FU-004	40-004	Woolen pocket watch	-1	122.00
2 FU-004	70-004	Dark (brown) sun glasses	1	172.00
3 FU-004	70-011	White T-Shirt	4	172.00
4 FU-004	50-001	Blue soft football shirt	1	11.20
5 FU-004	81-001	Levies and socks (ballroom fitted)	1	11.20
6 FU-004	80-004	Woolen dress hat	-1	172.00
7 FU-004	80-005	White gloves (lens)	6	18.71
8 FU-004	50-013	Black polo shirt	-1	18.71
9 FU-004	50-025	White golf ball and line	-1	18.71
10 FU-004	30-001	Hand stretched ball	1	18.71
11 FU-004	30-002	Cricket bat	1	14.30
12 FU-004	30-003	Leather rifle scope case	-1	14.30
13 FU-004	30-004	Khaki table wrap	1	19.80
14 FU-004	30-005	Black and silver ballpoint pen	-1	3.50
15 FU-004	30-006	Black ink 3.5mm ballpoint pen	-1	14.30
16 FU-004	30-007	Clipboard with silver pen	1	18.71
17 FU-004	40-011	Blue, yellow and red coloring pencils	1	172.00
18 FU-004	40-012	Blue, yellow and red coloring pencils	-1	172.00
19 FU-004	40-013	Blue, yellow and red coloring pencils	-1	172.00
20 FU-004	40-014	Magnifying glass	-1	125.00
21 FU-004	10-001	Blue notebook	1	14.30
22 FU-004	70-001	Leather cover organizer book	1	135.00
23 FU-004	70-002	Purple paper diary	1	135.00
24 FU-004	70-003	Free game book part	-1	135.00
25 FU-004	70-010	Blue calculator	1	30.15
26 FU-004	70-011	Blue calculator	1	15.15
27 FU-004	70-012	Woolen garment wrap	1	18.71
28 FU-004	70-013	Copy right shirt template	1	19.80
29 FU-004	70-014	Denim hat	1	14.30
30 FU-004	70-015	Woolen garment wrap	1	14.30
31 FU-004	70-016	Leather bracelet	-1	10.80
32 FU-004	70-017	Purple calculator	1	3.50
33 FU-004	70-018	White key ring	1	14.30
			Total until this point:	6728.76
			Total until this point:	6728.76

Design from data schema

Full design flexibility

Render as graphs, tables, pivots, fields, barcode...

RTL Expressions



Package & Deploy anywhere

- ▼ Packages
 - ▼ OrdersApp_Android
 - Binaries
 - Database
 - fglprofile
 - Images
 - libdbapp
 - Resources
 - Resources_dbapp
 - > OrdersApp_iOS
 - > OrdersApp_iOS_Simulator
 - > OrdersApp_Server

Cross-platform build
binaries run anywhere

Package for

iOS

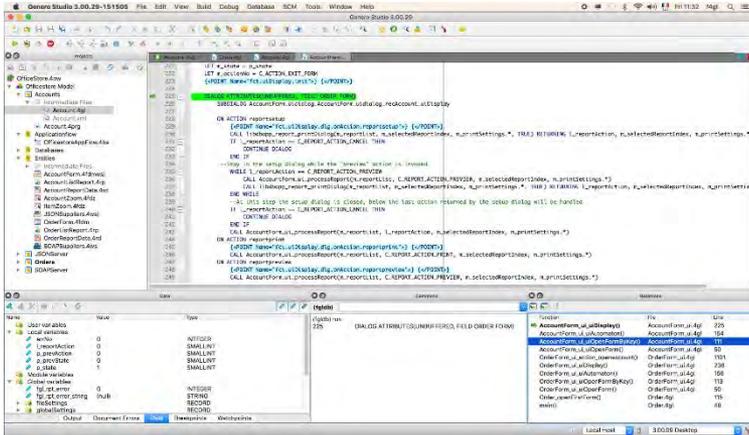
Android

Server (GAS)

Win, Linux, MacOs, HP,
AIX, Solaris...

Database: Oracle,
SQLServer, Informix,
DB2, MySQL, SQLite
PostgreSQL

Debug & Regression testing



Debugger

All platforms and front-ends

GUI Testing

Test generation

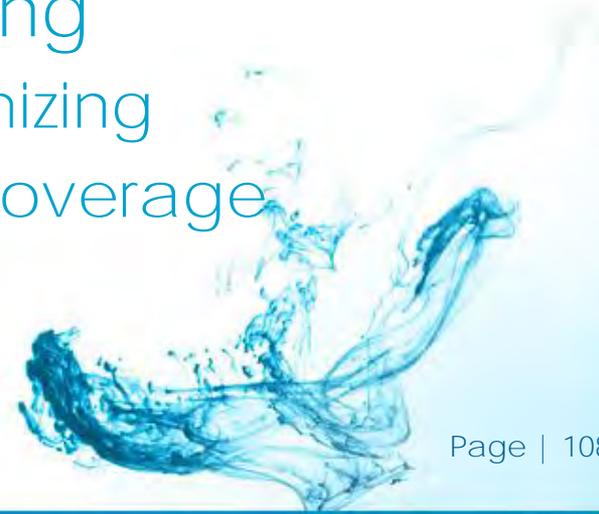
Automation

Code coverage & profiling

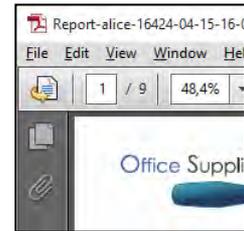
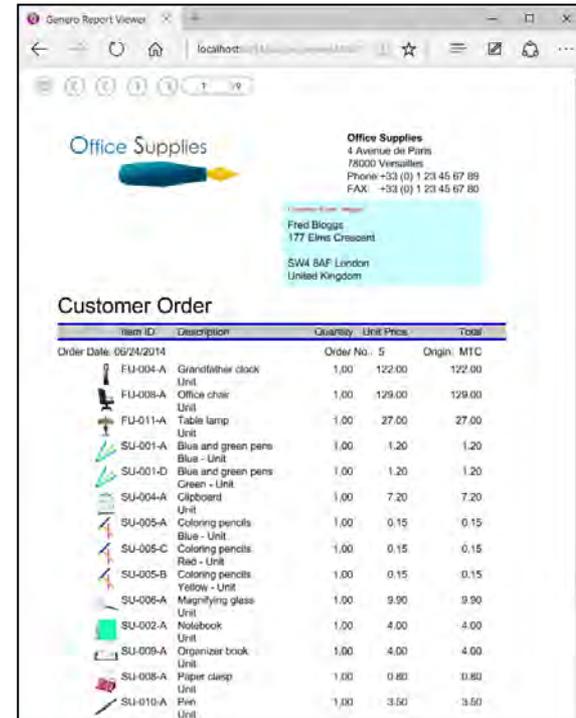
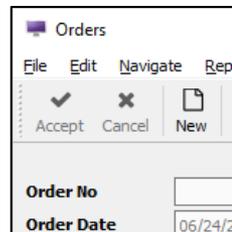
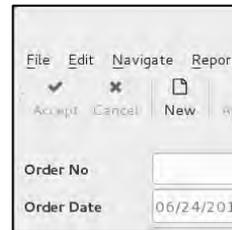
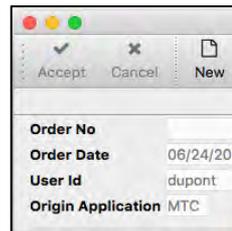
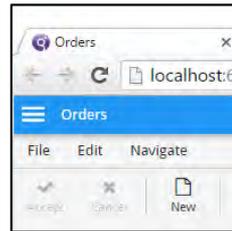
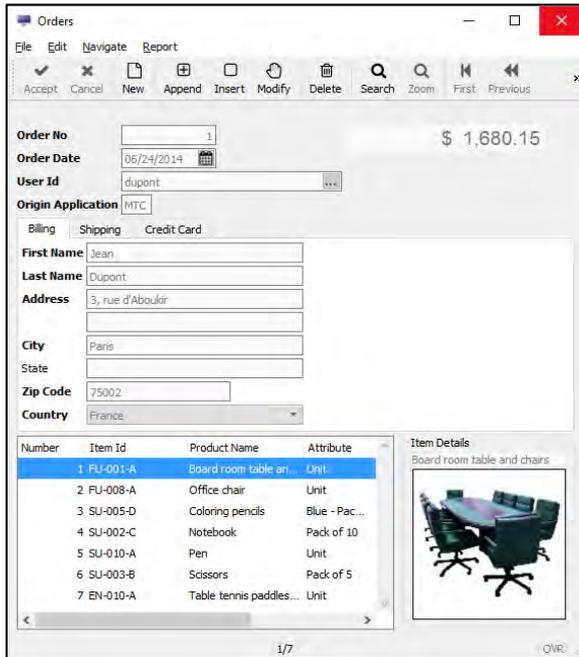
Optimizing

Test coverage

```
LOOKING_FOR_COLLISION
MAIN
4 CLOSE WINDOW SCREEN
4 OPEN WINDOW w1 WITH FORM "HelloForm" ATTRIBUTES ( style="dialog2" )
4 IF FALSE THEN
0 DISPLAY "Never been here!"
0 CALL neverCalled()
END IF
4 MENU
1 ON ACTION quit
1 EXIT MENU
3 ON ACTION close
3 EXIT MENU
END MENU
4 CLOSE WINDOW w1
4 END MAIN
```

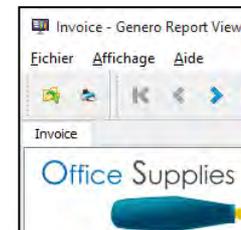


Display UI and reports anywhere

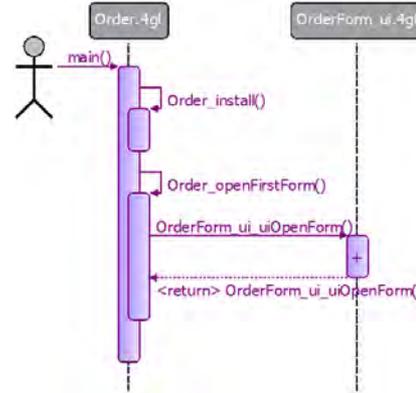
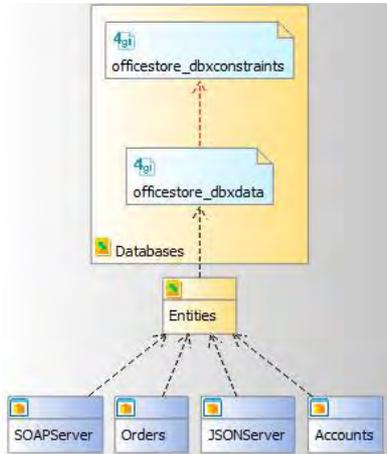


- Web
- Windows
- MacOS
- Linux
- Mobile (iOS, Android)

- Web
- PDF
- Excel
- Word
- Image
- Windows
- Linux
- MacOS



Technical Documentation



Dependency diagram

Apps, libs, modules

Call graphs

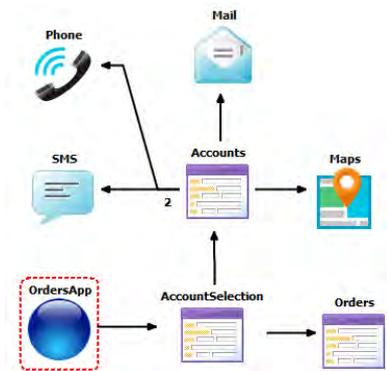
Sequence diagram

Call sequences

Source code

Navigate back and forth between code and diagrams

Database & Flow documentations



officestore

item

Column	Type	Not null	Widget	Label
itemid	CHAR(10)	Yes	Edit	Item Id
productid	CHAR(10)	Yes	Edit	Product Id
listprice	DECIMAL(10,2)	No	Edit	List Price
unitcost	DECIMAL(10,2)	No	Edit	Unit Cost
supplier	INTEGER	Yes	Edit	Supplier
istatus	CHAR(2)	No	Edit	Status
discountprice	DECIMAL(10,2)	No	Edit	discountprice
attr1	CHAR(100)	No	Edit	Attributes
attr2	CHAR(80)	No	Edit	Attributes
attr3	CHAR(80)	No	Edit	Attributes
attr4	CHAR(80)	No	Edit	Attributes

Indexes

idx_item_price : listprice

Foreign keys

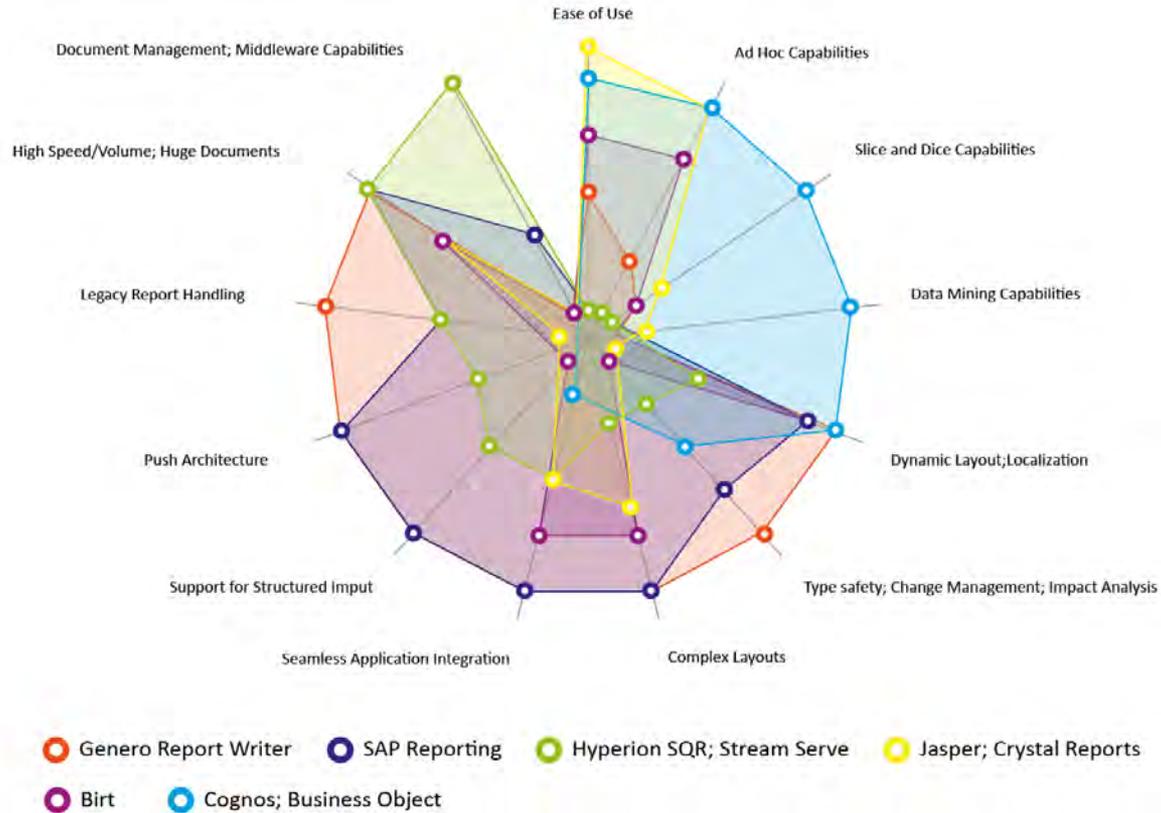
fk_item_product : item (productid) references product (productid)
fk_item_supplier : item (supplier) references supplier (supplier)

Genero Report Writer



FOUR Js
The Power of Simplicity

Positioning



Key features

- Enterprise reports
- Streaming architecture
- Scalable
- Dynamic layouting
- API driven
- Template driven
- Maintainable

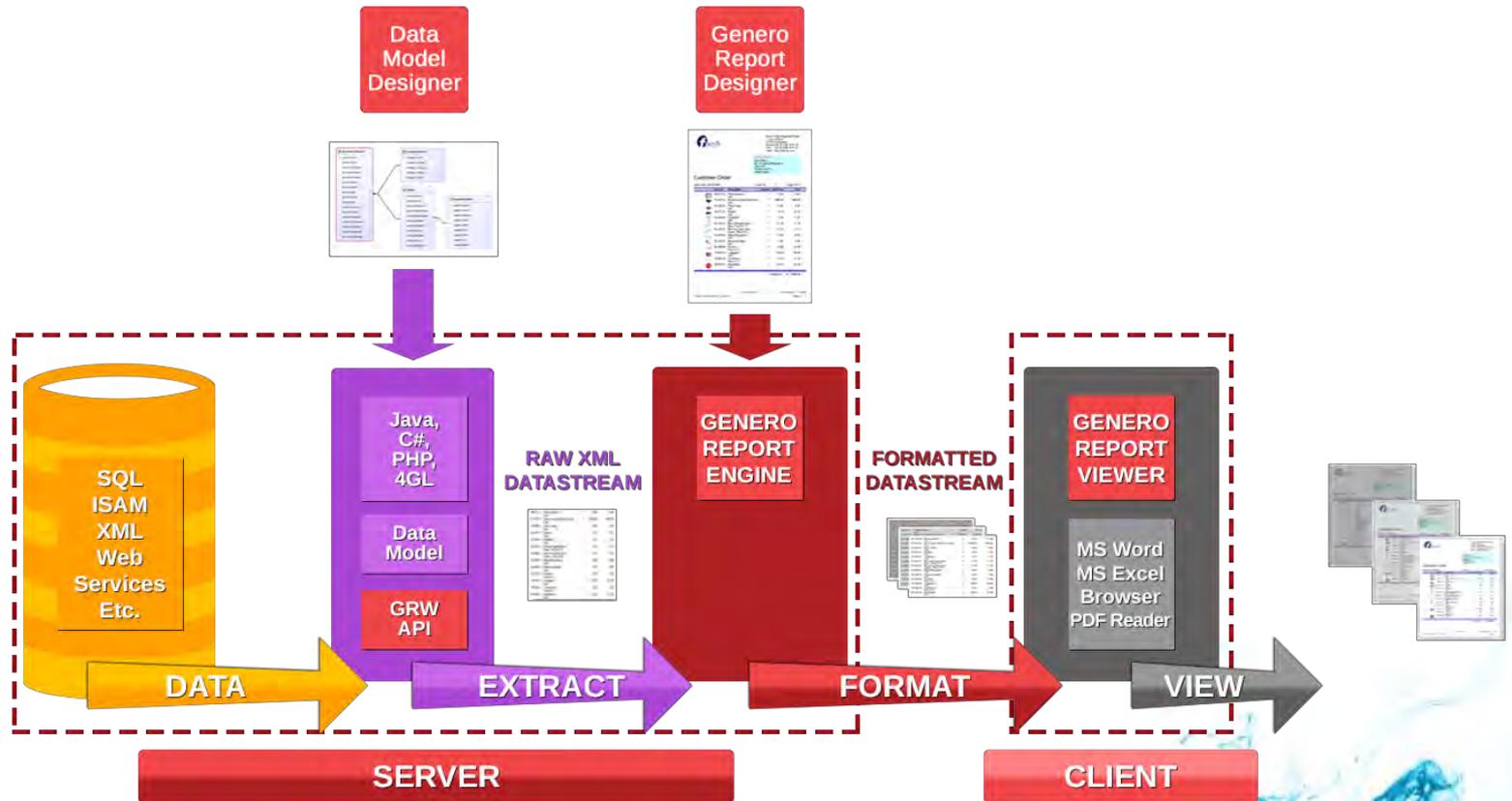


Architecture

Single server

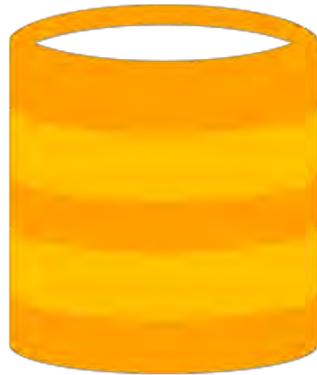
Development

Deployment

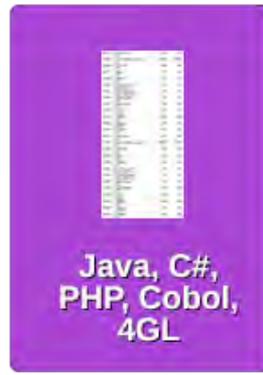


Architecture

Multi-server



DATA



Java, C#,
PHP, Cobol,
4GL

APP



REPORT ENGINE



REPORT VIEWER

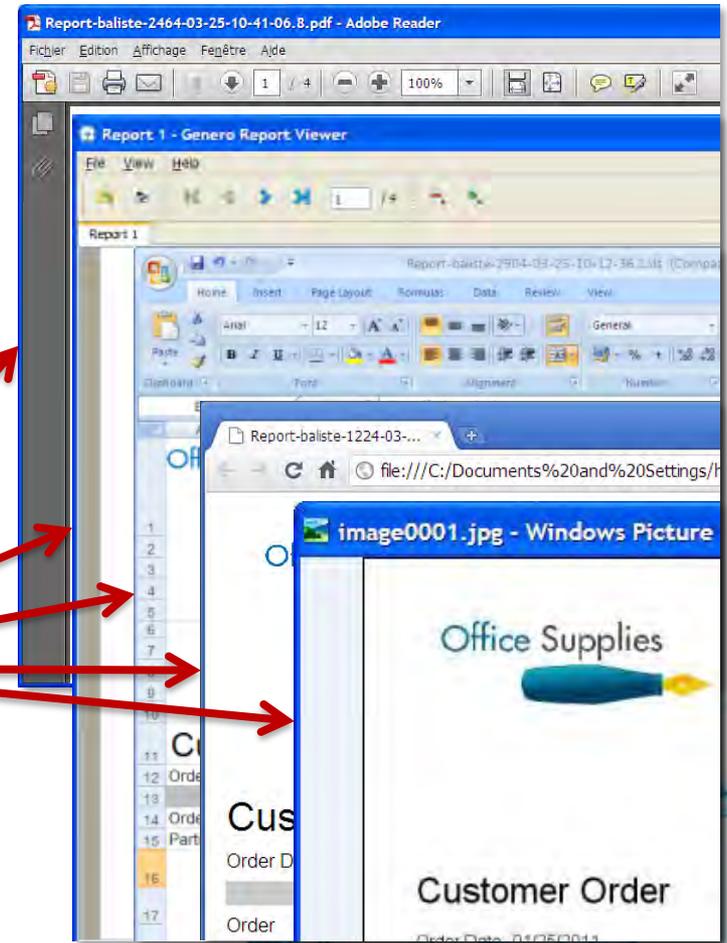
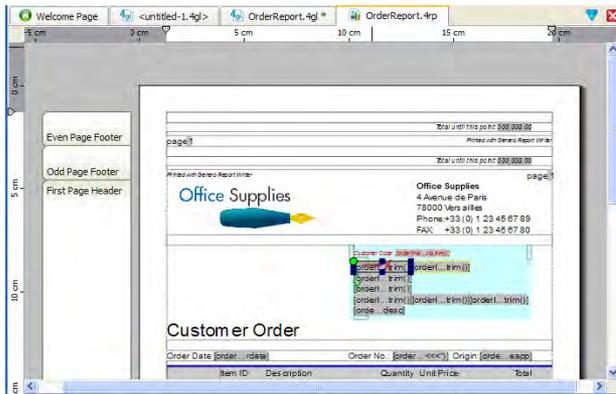


FOUR Js
The Power of Simplicity



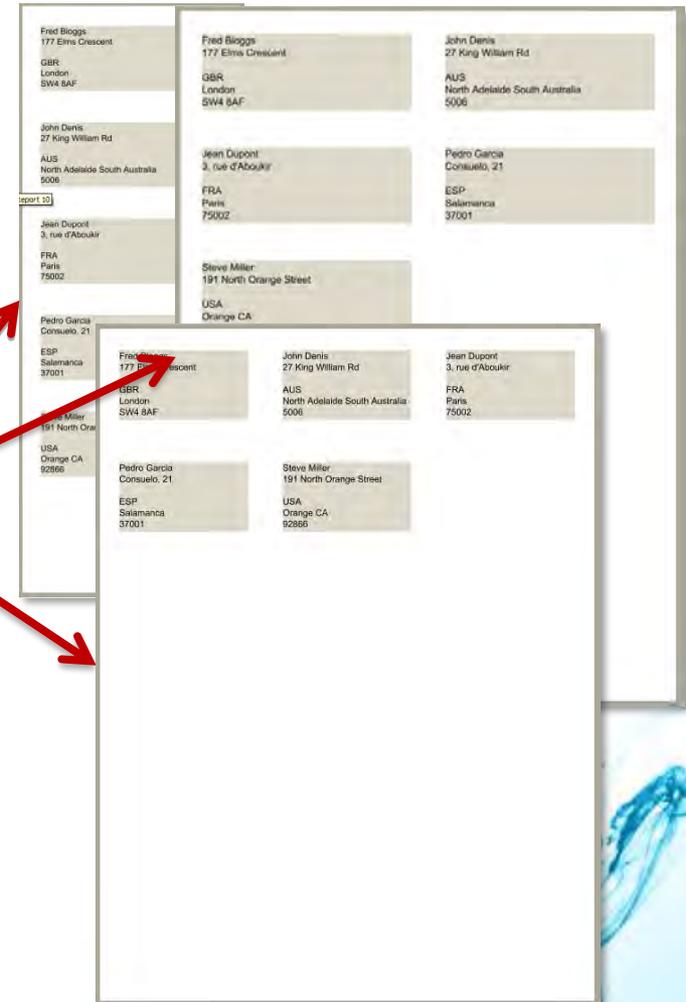
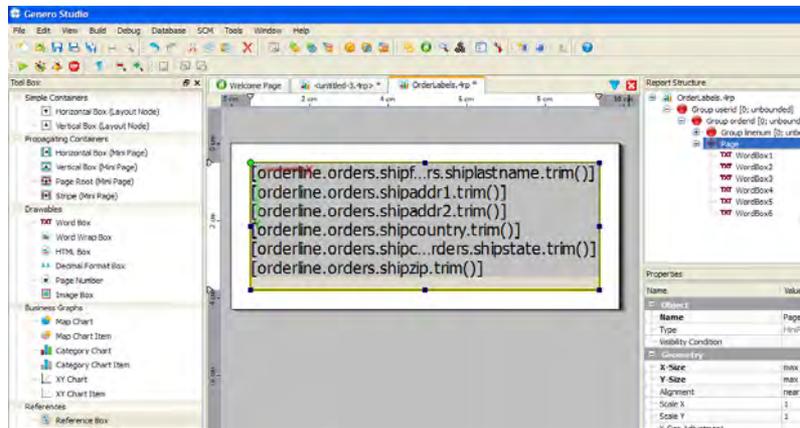
Key features

- Dynamic layouting
 - One report fits all
 - Adapts to different:
 - Fonts
 - Field values
 - International languages
 - Paper sizes and orientation

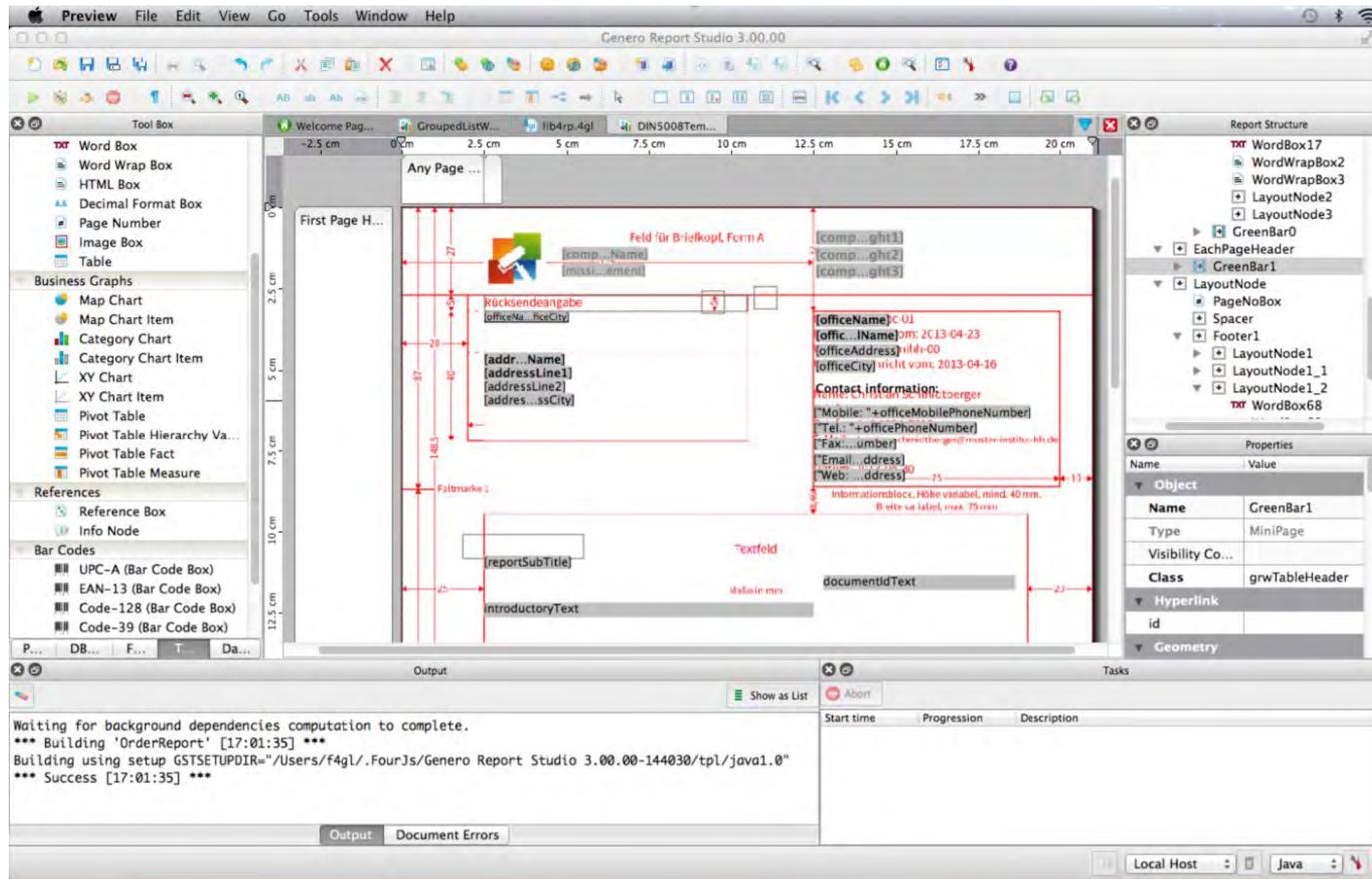


Key features

- Dynamic layouting
 - One label fits all
 - Layout can be set at runtime



Genero Report Designer



Report templates

Feld für Briefkopf, Form A
HARRIS PAINTING & DECORATING
WE PAINT WITH PASSION

Rücksendeangabe
Harris painting & decorating, 4 Main Street, Brisbane Central QLD 4001

Fred Bloggs
177 Elms Crescent
SW4 8AF London

Harris painting & decorating
David Harris vom: 2013-04-23
Kundenref: mihh-00
Bestellref: 2013-04-16

Contact information:
Ralfine Christian Schmidtberger
Telefon: +60 234 4678
Telefax: +60 234 4678
E-Mail: david@harris-painting.com.au
www.harris-painting.com.au

GUARANTEED QUALITY
HIGHLY EXPERIENCED
FULLY INSURED

Informationenblock, Höhe variabel, mind. 40 mm,
Breite variabel, max. 75 mm

Site: Seaside Apartment House Project

Dear Mr. Bloggs,

according to your order of 06/24/2014 please receive herewith our invoice 5 for the seaside apartment house project.

Quantity	Description	Unit	Price
5	1 FU-004-A	1	122.00
5	2 FU-008-A	1	129.00
5	3 FU-011-A	1	27.00
5	4 SU-001-A	1	1.20
5	5 SU-001-D	1	1.20
5	6 SU-004-A	1	7.20
5	7 SU-005-A	1	0.15
5	8 SU-005-C	1	0.15
5	9 SU-005-B	1	0.15
5	10 SU-006-A	1	9.90
5	11 SU-002-A	1	4.00
5	12 SU-008-A	1	4.00
5	13 SU-008-A	1	0.80
5	14 SU-010-A	1	3.50
5	15 SU-003-A	1	4.35
5	16 SU-011-A	1	8.10
5	17 AR-011-A	1	17.00
5	18 AR-004-A	1	117.00
5	19 AR-017-A	1	130.00
5	20 AR-012-A	1	29.00
5	21 TR-005-A	1	45.00
5	22 TR-007-A	1	38.00
5	23 TR-006-A	1	32.00
5	24 TR-009-A	1	31.00
5	25 TR-003-A	1	17.00
5	26 TR-012-A	1	11.90
5	27 TR-001-A	1	0.90

Seite 1 von 2

Company location: Harris painting & decorating, Brisbane Central, QLD 4001

Bank information: Bank of Queensland, Account No.: 30239438, BSB: 124-001, IBAN: AU45 3454 3443 43, BIC: BOCB33834XX

Management: David Harris, Tax No.: 49273893483, O-ID: K02982823

eingetragen beim Amtsgericht Urt, MKO-Nummer

HARRIS PAINTING & DECORATING
WE PAINT WITH PASSION

Harris painting & decorating, 4 Main Street, Brisbane Central QLD 4001

Fred Bloggs
177 Elms Crescent
SW4 8AF London

Harris painting & decorating
David Harris
4 Main Street
Brisbane Central QLD 4001

Contact information:
Mobile: 1300 234 467
Tel.: 1300 234 456
Fax: 1300 234 458
Email: david@harris-painting.com.au
Web: www.harris-painting.com.au

GUARANTEED QUALITY
HIGHLY EXPERIENCED
FULLY INSURED

Site: Seaside Apartment House Project

Dear Mr. Bloggs,

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5	2 FU-008-A	1	129.00
5	3 FU-011-A	1	27.00
5	4 SU-001-A	1	1.20
5	5 SU-001-D	1	1.20
5	6 SU-004-A	1	7.20
5	7 SU-005-A	1	0.15
5	8 SU-005-C	1	0.15
5	9 SU-005-B	1	0.15
5	10 SU-006-A	1	9.90
5	11 SU-002-A	1	4.00
5	12 SU-008-A	1	4.00
5	13 SU-008-A	1	0.80
5	14 SU-010-A	1	3.50
5	15 SU-003-A	1	4.35
5	16 SU-011-A	1	8.10
5	17 AR-011-A	1	17.00
5	18 AR-004-A	1	117.00
5	19 AR-017-A	1	130.00
5	20 AR-012-A	1	29.00
5	21 TR-005-A	1	45.00
5	22 TR-007-A	1	38.00
5	23 TR-006-A	1	32.00
5	24 TR-009-A	1	31.00
5	25 TR-003-A	1	17.00
5	26 TR-012-A	1	11.90
5	27 TR-001-A	1	0.90

Seite 1 von 2

Company location: Harris painting & decorating, Brisbane Central, QLD 4001

Bank information: Bank of Queensland, Account No.: 30239438, BSB: 124-001, IBAN: AU45 3454 3443 43, BIC: BOCB33834XX

Management: David Harris, Tax No.: 49273893483, O-ID: K02982823

Report templates

The screenshot shows a software interface for configuring and previewing reports. The left pane is titled 'Menu' and contains configuration options for 'Data Source & Template' and 'Parameters'. The 'Data Source & Template' section includes a 'Design Template' dropdown set to 'DING008Template', a 'Data Source' section with 'rdd File Name' set to 'OrderReport', 'xsd File Name' set to 'OrderReport-report_all_orders', and 'Report Name' set to 'report_all_orders'. Below this is a 'Fields not printed' list and a 'Fields contained in the report' list. The 'Fields contained in the report' list includes: 'orderline.lineitem.orderid', 'orderline.lineitem.linenum', 'orderline.lineitem.itemid', 'orderline.lineitem.quantity', and 'orderline.lineitem.unitprice'. A 'Placeholder Mapping' table is also present, mapping fields like 'officeMobilePhoneNumber' to values like '1300 234 457'. At the bottom, a 'Command Line' section shows a Java command for generating the report.

The right pane shows a preview of an invoice report for 'HARRIS PAINTING & DECORATING'. The report includes company details, contact information, and an invoice table. The contact information for David Harris is highlighted with a red box, showing 'Tel: 1300 234 458' and 'Fax: 1300 234 458'. The invoice table lists items with quantities and prices, totaling 117.00. The report footer includes 'Page 1 von 2' and 'Company Location: Management'.

Report templates - samples

Order List Grouped by Customers and Orders				3
Orderid	Linenum Itemid	Quantity	Unitprice	
Carried forward:				1,173.50
denis John Denis				Carried forward:
				112.00
3.0	02/20/2014	Carried forward:		112.00
	3	4 EN-004-A	1	97.00
Total of 3.0:				209.00
Total of denis:				209.00
dupont Jean Dupont				
1.0	02/20/2014			
	1	1 FU-001-A	1	1,480.00
	1	2 FU-008-A	1	129.00
	1	3 SU-005-D	1	1.30
	1	4 SU-002-C	1	34.00
	1	5 SU-010-A	1	3.50
	1	6 SU-003-B	1	4.35
	1	7 EN-010-A	1	18.00
Total of 1.0:				1,680.15
Total of dupont:				1,680.15
Total until this point:				2,950.65

Order List Grouped by Customers and Orders				
Linenum Itemid	Prodname	Quantity	Unitprice	
Carried forward:			1,081.50	
denis John Denis				
3.0	02/20/2014	Carried forward:		
				112.00
	1 FU-005-A	Filing cabinets	1	17.00
	2 FU-003-A	Globe	1	22.00
	3 AR-014-A	Picture frame 4	1	73.00
	4 EN-004-A	Chess game	1	97.00
Total of 3.0:				209.00
Total of denis:				209.00
dupont Jean Dupont				
1.0	02/20/2014			
	1 FU-001-A	Board room table and chairs	1	1,480.00
	2 FU-008-A	Office chair	1	129.00
	3 SU-005-D	Coloring pencils	1	1.30
	4 SU-002-C	Notebook	1	34.00
	5 SU-010-A	Pen	1	3.50
	6 SU-003-B	Scissors	1	4.35
	7 EN-010-A	Table tennis paddles and ball	1	18.00
Total until this point:				1,680.15
Total until this point:				1,680.15
Total until this point:				2,950.65
				3 of 5



Key features

➤ API driven

➤ Java

- Supports J2SEE & J2EE,
- Supports JAXB,
(Schema generation and marshalling)

➤ .Net

- Supports Xsd.exe/XmlSerializer,
(schema generation and marshalling)

➤ PHP

- BAM data source generation.



Enterprise class reports – output formats

HTML & PDF

fourjs logo

Four Js Development 1
 7 rue de Dublin
 67503 Schtrouffheim
 Phone: +33 (0) 3 88 18 21
 FAX: +33 (0) 3 88 18 21
 Web: http://www.fourjs.com

Customer code: 00000
 John Denis
 Suite 503, Level 5
 165 Walker Street
 2060 North Sydney NSW
 Australia

Customer Order

Order Date: 09/09/2008 Order No.: 3 Origin

Item ID	Description	Quantity	Unit Price
FLU-005-A	Filing cabinets Unit	1.00	17.00
FLU-003-A	Globe Unit	1.00	22.00
AR-014-A	Picture frame 4 Unit	1.00	73.00
EN-004-A	Chess game Unit	1.00	97.00

Total of order: 3 from 09/09/2008
 Order 1 from 09/09/2008

Item ID	Description	Quantity	Unit Price
FLU-001-A	Board room table and chairs Unit	1.00	1490.00
FLU-004-A	Office chair Unit	1.00	129.00
SU-005-D	Coloring pencils Blue - Pack of 10	1.00	1.30
SU-002-C	Notebook Pack of 10	1.00	34.00
SU-010-A	Pen Unit	1.00	3.50
SU-003-B	Scissors Pack of 5	1.00	4.35
EN-010-A	Table tennis paddles and ball Unit	1.00	19.00

Total of order: 1 from 08/09/2008

Company: 1 United sportswear - Order Items 2003-08-14 Page: 1

User: 12 A Smith ordered ascending by user id, order id and line number John Denis

Begin of order	3.0 from	09/09/2008		
fts-asia	John Denis	FLU-005	17.00	Filing cabinets
fts-asia	John Denis	FLU-003	22.00	Globe
fts-asia	John Denis	AR-014	73.00	Picture frame 4
fts-asia	John Denis	EN-004	97.00	Chess game
Total of order 3.0 209.0				
Begin of order	1.0 from	08/09/2008		
fts-fr	Jean Dupont	FLU-001	1,490.00	Board room table and chairs
fts-fr	Jean Dupont	FLU-008	129.00	Office chair
fts-fr	Jean Dupont	SU-005	1.30	Coloring pencils
fts-fr	Jean Dupont	SU-002	34.00	Notebook
Total of order 1.0 1663.3				

Company: 1 United sportswear - Order Items 2003-08-14 Page: 2

User: 12 A Smith ordered ascending by user id, order id and line number John Denis

fts-fr	Jean Dupont	SU-010	3.50	Pen
fts-fr	Jean Dupont	EN-010	4.35	Scissors
fts-fr	Jean Dupont	EN-010	19.00	Table tennis paddles and ball

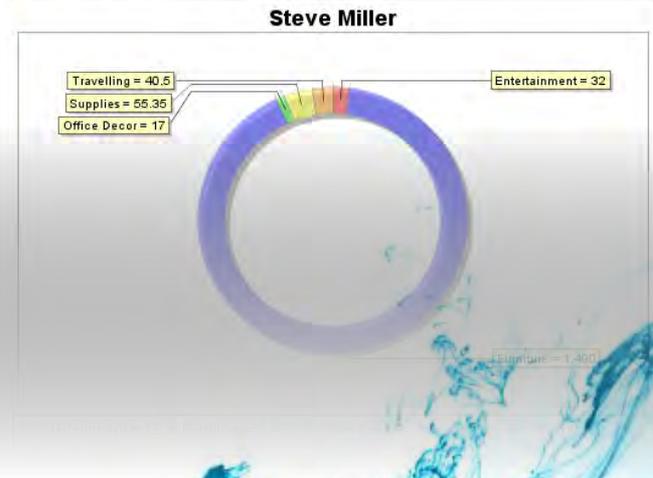
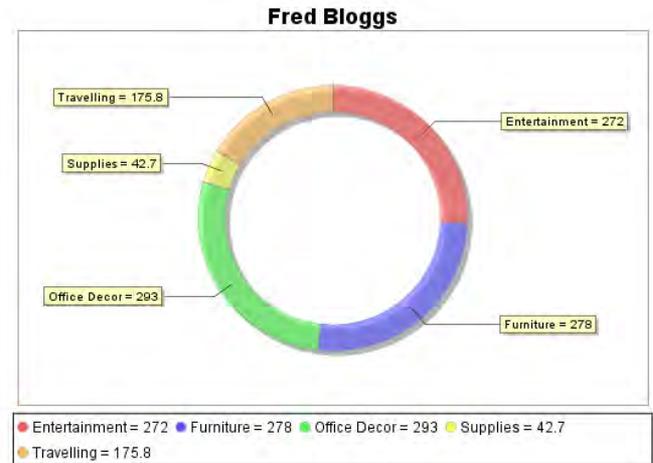


Table layout

➤ Table object manipulates columns, lines and cells for easier formatting and alignment

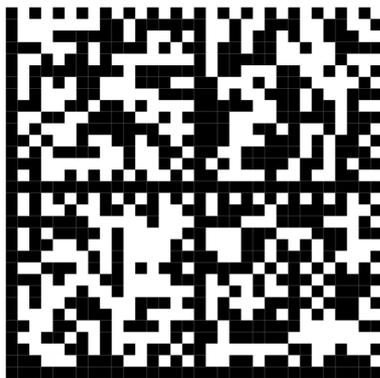
	Header A	Header B			Header C
Header 1	Header 2	Header 3	Header 4	Header 5	
L11	L12	L13	L14	L15	L16
L21	L22	L23	L24	L25	L26
L31	L32	L33	L34	L35	L36
L41	L42	L43	L44	L45	L46
L51	L52	L53	L54	L55	L56

	Overall	Environment			Factors									
		Work	Leadership	Learning	Accountability	Support to Employees	Collaboration	High Performance	In-Custom	Processes	Behaviors	Communications	Formal	Informal/Social
XYZ Corporation	3	3	2	2	3	3	3	2	3	2	3	3	3	2
Business Unit X	3	3	2	2	3	3	3	2	3	3	3	3	2	
Sales Unit 1	5	5	4	4	5	5	5	3	5	4	5	5	4	
Sales Unit 2	3	3	2	2	3	3	3	2	3	3	3	3	2	
Sales Unit 3	2	2	2	2	2	2	2	1	2	2	2	2	1	
Business Unit Y	2	2	2	2	3	3	2	2	3	2	3	3	2	
Call Center 1	4	4	3	3	5	4	4	2	5	3	5	5	3	
Call Center 2	2	2	3	3	2	3	2	2	3	3	3	3	2	
Call Center 3	3	3	2	2	2	3	3	3	2	3	2	3	2	
Business Unit Z	3	3	3	3	3	3	3	2	3	2	3	3	2	
Plant 1	4	4	5	5	4	5	4	3	5	4	5	5	3	
Plant 2	3	3	3	3	3	4	3	3	2	3	4	4	3	
Plant 3	3	2	3	3	3	3	2	2	3	3	3	3	2	

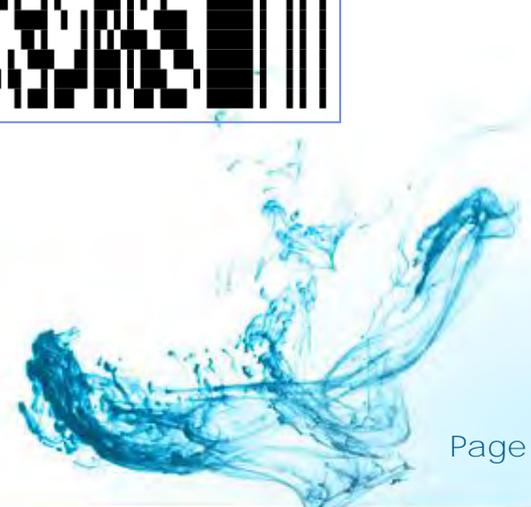
Tool Box

- Simple Containers
 - Horizontal Box (Layout Node)
 - Vertical Box (Layout Node)
- Propagating Containers
 - Horizontal Box (Mini Page)
 - Vertical Box (Mini Page)
 - Page Root (Mini Page)
 - Stripe (Mini Page)
- Drawables
 - Word Box
 - Word Wrap Box
 - Decimal Format Box
 - Page Number
 - Image Box
- High Level Elements
 - Table
 - Row
 - Column
 - List
 - Ordered List
 - List Item
 - Paragraph
 - Paragraph Break (Newline)
- Business Graphs
 - Map Chart
 - Map Chart Item

Barcodes



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Quick response (QR) codes

Hello World: width="3cm"

<http://www.4js.com>



Hello World: size not specified
(default error correction (3))



Genero IoT

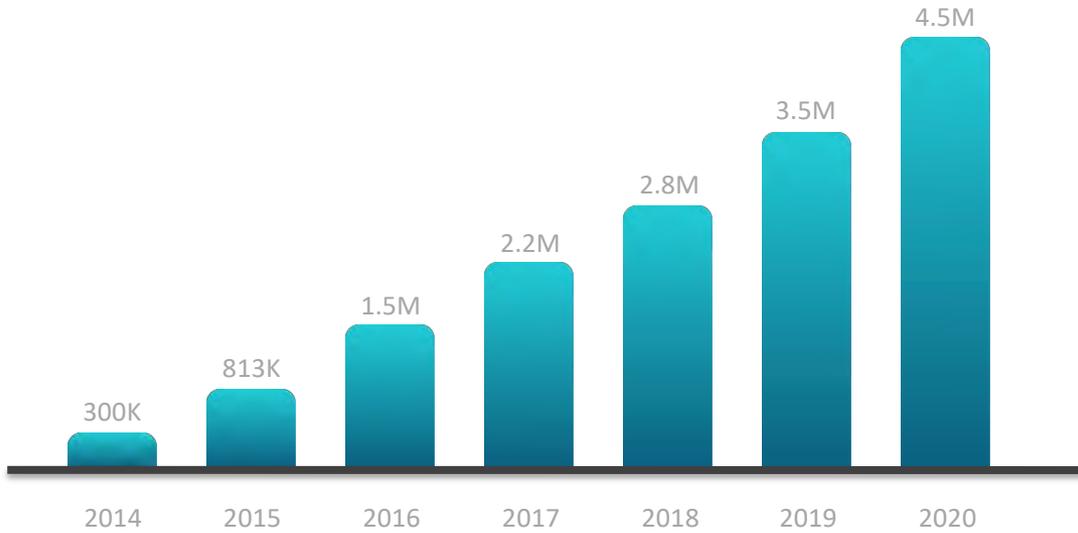


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IoT developers

Forecast 2014-2020



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Report: IoT: Breaking Free From Internet And Things | vmob.me/IoT
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Internet of Things

Relevant in Genero key markets

	Banking	Healthcare	Automotive	Retail	Transport	Energy
 Monetize	Cash replacement Mobile banking	Domestic family care services	Pay-per-drive rentals & insurance	Cash replacement Sensor enabled loyalty cards	Paid traveller alerts Congestion charging	Pay-per-use energy
 Optimize	Optimized cash mgmt.	ER bed resource mgmt.	Component predictive replacement Fleet mgmt.	Delivery & stock replenishment Store layout	Smart cities traffic mgmt. Airport mgmt.	Peak load mgmt.
 Extend	Banking the 'un-banked' Biometrics Smarter Subsidies	Life style monitoring	In-car Infotainment Autonomous driving	Smart vending machines Delivery lockers	Mobility services	Smart home services Security
 Control	Remote ATMs Authorization	Remote hospital mgmt.	Drive-train optimization	Store energy Store parking Dynamic price labels	Crowd mgmt. Timetable mgmt. Asset mgmt.	Smart meters



Our customers

Media



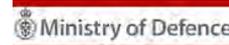
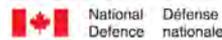
Finance



Retail



Govt.



Energy



Logistics



Dealers



JOHN DEERE



Mfg.



IoT Gateways

Why use gateways in an IoT environment?

- Deliver analytics and insights for data-in-motion
- Reduces latency
 - Event detection & response in real-time
 - Perform 80% of analysis in the gateway
- Reduces cost
 - Less Cloud storage,
 - Less Cloud CPU cycles.
- Security
 - Capture value w/o sending to the Cloud.



Internet of Things

Use case – home automation

```
1 2014-06-02 11:07:13,0.0,0.0,0.0
2 2014-06-02 11:07:13,30.4
3 2014-06-02 11:07:14,30.4
4 2014-06-02 11:07:15,30.4
5 2014-06-02 11:07:16,30.4
6 2014-06-02 11:07:17,30.4
7 2014-06-02 11:07:18,30.4
8 2014-06-02 11:07:19,30.4
9 2014-06-02 11:07:20,30.4
10 2014-06-02 11:07:21,30.4
11 2014-06-02 11:07:22,30.4
12 2014-06-02 11:07:23,30.4
13 2014-06-02 11:07:24,30.4
14 2014-06-02 11:07:25,30.4
15 2014-06-02 11:07:26,30.4
16 2014-06-02 11:07:27,30.4
17 2014-06-02 11:07:28,30.3
18 2014-06-02 11:07:29,30.3
19 2014-06-02 11:07:30,30.2
20 2014-06-02 11:07:31,30.3
21 2014-06-02 11:07:32,30.3
22 2014-06-02 11:07:33,30.3
23 2014-06-02 11:07:34,30.3
24 2014-06-02 11:07:35,30.3
25 2014-06-02 11:07:36,30.3
26 2014-06-02 11:07:37,30.3
27 2014-06-02 11:07:38,30.3
28 2014-06-02 11:07:39,30.3
29 2014-06-02 11:07:40,30.3
30 2014-06-02 11:07:41,30.3
31 2014-06-02 11:07:42,30.3
32 2014-06-02 11:07:43,30.3
```

- Sample ambient temperature output includes:
 - Date (YMD)
 - Time (h:m:s)
 - Temperature in Celsius
- Configurable frequency and temperature scales



Internet of Things

Use case – home automation



*XMPP: Extensible Messaging and Presence Protocol
*MQTT: Message Queue Telemetry Transport



Internet of Things

Use case – healthcare



Real-time
Response on
Alerts and
Analytics

Data collection
across all devices
across all healthcare facilities

Data
NoSQL
Relational
Timeseries



IoT in the Cloud

CoAP,
6LoWPAN,
ZigBee etc..



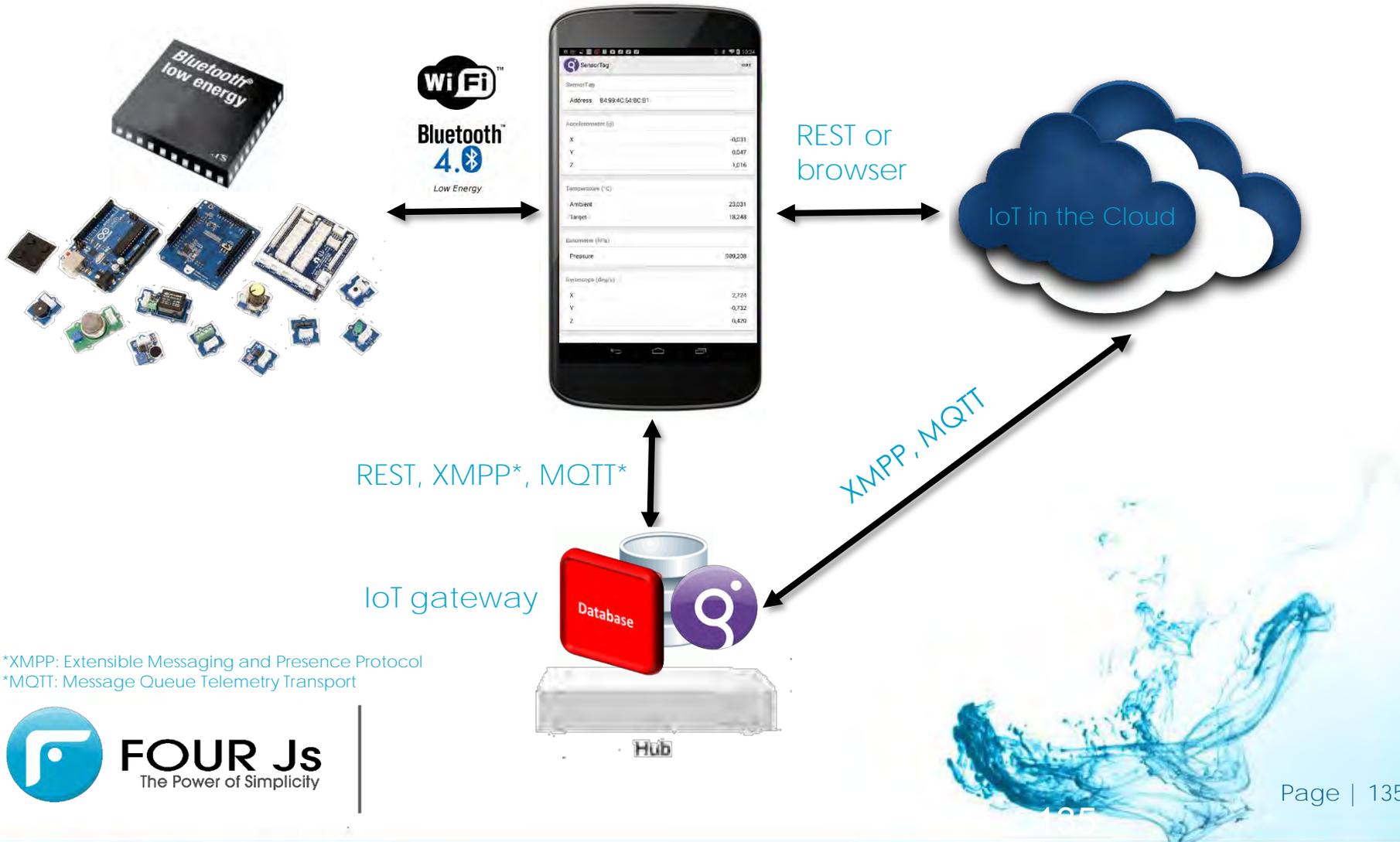
Patient care giver



IoT gateway

Internet of Things

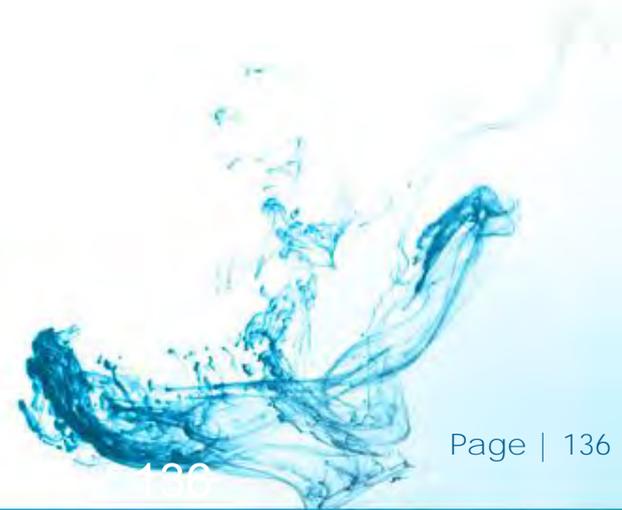
Use case – low energy Bluetooth & Wifi



IoT development

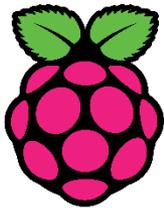
Needs of an IoT development environment

- Cross-platform (OS & H/W)
- Same app runs in gateway and Cloud
- Native or RESTful database access
- Web framework
- Rapid development with lightweight footprint
- Multi-format data
 - SQL, NoSQL, TimeSeries, spatial, streaming sensor data, etc
- I/f to Java, C, etc. to connect with sensors
- Supports BlueTooth, protocol libraries, etc
- Support for basic analytics

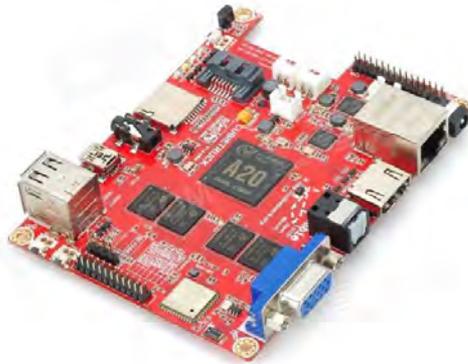


Internet of Things

What are we doing? First steps...



RaspberryPi



cubieboard



beagleboard.org



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Internet of Things

Texas Instruments SensorTag PoC



Thank You



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Backup



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