SMECluster Event 4
Stepping into the Twinned Digital World of 4IR

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Who am I?

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Inspiration
The Ages of the OS: DOS

Starting MS-DOS...

C:\>
The Ages of the OS: iOS
…and now: vf-OS

virtual factory Operating System
First, some Ad

https://youtu.be/TFdaUeTrEE0
If you want to create an Android application you require an SDK with java programming and an Android Marketplace to exploit it.

If you want to create an iOS application you require an iOS SDK with the swift language and the Apple App Store to exploit it.

If you want to create a vf-OS application you require the vf-OAK and utilise the vf-OS Platform to exploit it.
Who is vf-OS?
What is vf-OS?

Complex
How big is vf-OS?

Big
## Aspiration

### Software Operating System Environment & vf-OS Equivalent

<table>
<thead>
<tr>
<th>Kernel</th>
<th>Virtual Factory System Kernel</th>
</tr>
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<tbody>
<tr>
<td>Processor, Memory, Internal Bus</td>
<td>Framework, Enablers</td>
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<table>
<thead>
<tr>
<th>I/O</th>
<th>Virtual Factory I/O</th>
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<tbody>
<tr>
<td>Interfaces, Device Drivers, Peripherals</td>
<td>Device Drivers, APIs, Security</td>
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<thead>
<tr>
<th>File and Data Handling</th>
<th>Virtual Factory Middleware</th>
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<tr>
<td>Interfaces</td>
<td>Data Infrastructure, Storage, Harmonisation, Analytics</td>
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<tr>
<th>SDK</th>
<th>Open Applications Development Kit</th>
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<tr>
<td>Application Development, System Monitor</td>
<td>System Dashboard, Frontend Environment, Studio, Developer Engagement Hub</td>
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<tr>
<th>Applications</th>
<th>vApps</th>
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<tbody>
<tr>
<td>ERPs, CRMs, MESs, WMs</td>
<td>Collaboration in real-time, monitoring</td>
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Application
Use cases

Pilot A – Manufacturing & Logistics/Automation:
- **Goal:** To build a set of Smart Applications (vApps), integrated into vf-OS, for the **advanced management of spare-parts** in the automation production equipment sector.

Pilot B – Manufacturing Assembly/Collaboration:
- **Goal:** To **accelerate and maintain collaboration** channels between a network of collaborative SMEs in two complementary business domains: plastic and metal.

Pilot C – Construction/Industrialization:
- **Goal:** To facilitate the **documentation management** of a construction site by assimilating to an industrial factory where workers manufacture, assemble goods, operate machines, and carry out tasks processing products.
### Expanding the Ecosystem

<table>
<thead>
<tr>
<th>What?</th>
<th>How?</th>
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<tbody>
<tr>
<td>Starter Apps</td>
<td>Open and Attractive to use</td>
</tr>
<tr>
<td>Flexible Apps</td>
<td>Not huge monolithic components</td>
</tr>
<tr>
<td>Commercial Grade</td>
<td>Using what’s there and putting together</td>
</tr>
<tr>
<td>Prizes</td>
<td>Not cascading call but self-funded</td>
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</table>
Sustainable business model based on the use of the *vf-P*, *vf-Store*, and other *vf-OS* components

- **Open Access**: *vf-OS* and all its components will be by default open source
- **Sustainable Marketplace and Store**: *vf-OS* will take advantage of the great success of the mobile apps business model
- **Start-up Company**: Provide a sustainability model including the establishment of a start-up company to exploit data and data services
Multi-Sided Platform

DIGITAL INTERFACE

MASHUP OF DIGITAL & ANALOG TECHNOLOGIES

FILTERS & ALGORITHMS

PRODUCERS

- Manufacturers
- Service Providers
- Content Providers
- Data Providers
- ...

CONSUMERS

- Users
- Paying Customers

Products & Services

Information

Finance
Technology
**vf-OS Stack**

| WP3: Kernel | • Take advantage of FIWARE/FITMAN enablers  
|            | • Process Designer and Execution Engine |
| WP4: I/O   | • Connectors to Applications (eg ERP) and Devices 
|           | + Security Concept |
| WP5: Data & Connect | • Data Middleware, Storage, Harmonisation, Analytics |
| WP6: OAK  | • SDK, Control Panel, Dashboard/Frontend  
|           | • Studio, Developer Hub |
| WP7: Platform | • Platform, Marketplace, Service Framework, Engagement/Training, Integration |

But in context of User scenarios
Overview
High-level Architecture

External Service Providers (Hosting, Computation...)

Kernel

Application Development (Design)
- OAK Toolkit
  - Process Designer, Data Mapping, SDK, Frontend Environment, Studio
- Engagement
  - Hub, Training

vf-OS Platform
- Middleware
  - Process Execution, PubSub, and Messaging
- Data Management
  - Analysis, Storage and Transformation
- I/O Toolkit
  - Gateways to Sensors, APIs, ERP..., External Service Provision, Enablers (Framework)
- Control
  - Security, System Dashboard

vf-OS Platform Providers
- Application Deployment (Use)
  - Marketplace Services
  - vf-OS Assets
    - vApps, Services, Enablers (Applications), 3rd Party Services

Manufacturing and Logistics Solutions Providers

Manufacturing and Logistics Users (From Factories to Sensors)
Then, digging a bit more
Let’s unleash vf-OS
## Partnership

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<thead>
<tr>
<th>ID</th>
<th>Participant organisation name</th>
<th>Country</th>
<th>Nature</th>
</tr>
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<tbody>
<tr>
<td>1 (CO)</td>
<td>Information Catalyst for Enterprise Ltd</td>
<td>UK</td>
<td>SME</td>
</tr>
<tr>
<td>2</td>
<td>Ikerlan SCL</td>
<td>Spain</td>
<td>Technological Center</td>
</tr>
<tr>
<td>3</td>
<td>UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias</td>
<td>Portugal</td>
<td>Research</td>
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<tr>
<td>4</td>
<td>Universitat Politècnica de València</td>
<td>Spain</td>
<td>University</td>
</tr>
<tr>
<td>5</td>
<td>Caixa Mágica Software, S.A.</td>
<td>Portugal</td>
<td>SME</td>
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<tr>
<td>6</td>
<td>Université Lumière Lyon 2</td>
<td>France</td>
<td>University</td>
</tr>
<tr>
<td>7</td>
<td>Ascora GmbH</td>
<td>Germany</td>
<td>SME</td>
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<td>8</td>
<td>Almende B.V.</td>
<td>The Netherlands</td>
<td>SME</td>
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<tr>
<td>9</td>
<td>Mondragón Assembly</td>
<td>Spain</td>
<td>SME</td>
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<tr>
<td>10</td>
<td>Via Solis UAB</td>
<td>Lithuania</td>
<td>SME</td>
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<tr>
<td>11</td>
<td>Consulgal - Engenharia e Gestao S.A.</td>
<td>Portugal</td>
<td>Large enterprise</td>
</tr>
<tr>
<td>12</td>
<td>Knowledgebiz, Lda</td>
<td>Portugal</td>
<td>SME</td>
</tr>
<tr>
<td>13</td>
<td>Applications Plastiques du Rhone SAS</td>
<td>France</td>
<td>SME</td>
</tr>
<tr>
<td>14</td>
<td>Tardy SAS</td>
<td>France</td>
<td>SME</td>
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Contact us

http://vf-os.eu

https://www.youtube.com/channel/UCN-5AXqlaXjXltq8jJuoW1w

https://www.linkedin.com/in/vf-os-project/

https://www.facebook.com/vf.os.5

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ICE is a service, data, and software company
Established in the UK since 1996 as a consultancy
From 2015 as a ICT Provider company
Grown from 2 to 20 people since 2015
Established ICE Spain a couple of months ago
Target market SME-Mid-Caps
Domains: Generic Middleware, Apps, including FOF
RTD Areas:
  • Semantic Interoperability
  • Process Design/Execution
  • Big Data
  • IoT Connectivity
Many thx!

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