Making MCP more agile for ING
Best of both worlds

Boris Maltha
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Agenda

• Best of both worlds – The Challenge
• Background ING
• Challenge for ING and Unisys
• The Response to the Challenges
• Results & Benefits
Best of both worlds – The Challenge

• 30+ year old hardened code vs. cloud technology

• Mission-critical, mature systems vs. responding to new challenges and opportunities

• How can we decouple a historical code base from the hardware it was designed on and make it part of a new paradigm?

(As Marc Andreessen said in his famous paper ‘While software is eating the world’)
ING Belgium

- Belgian part of ING Group (Top 12 bank in Europe, by assets); universal direct bank providing financial products and services to individuals and corporations.

- ING Belgium Financial results (2016)
  - Revenue: €3.455
  - Profit before tax: €769

- 2,5 M active clients (+ 100 000 new accounts opened in 2016)

- Strategic directions: “We are working relentlessly on our customer promise to constantly deliver on a differentiating customer experience that is both extremely personal and extremely easy.”
  - → Ongoing Digital Transformation Program (announced in Oct 2016)
    - Implement common IT platform between ING NL and ING Belgium,
    - Revisit the way of working by implementing an Agile organization (inspired by Spotify),
    - Be driven by innovation.

- Awarded in 2016 as “Bank of the year” in Belgium by The Banker Magazine
25M Lines of Cobol
16 Libra 8390
9000 MIPSmonths per month
ClearPath Forward MCP environment

- Very first system was implemented in Mid-1970’s.
- This platform is critical not only for ING Belgium but for ING Group as well:
  - The gateway to SWIFT for international payment for multiple ING entities runs on CPF.
  - CoE “SEPA Direct Debit payment”: Processing for multiple ING entities on CPF.
ING : 10 principles derived from the IT strategy

1. Focus investments preferably on creating value for our customers and stakeholders
2. Stay competitive, especially Omni-channel approach and digital first
3. IT cost reduction and search for new revenues given the low interest rate context
4. **Consolidation of regional data centers** into corporate data centers
5. Move all applications to ING Private Cloud
6. No new applications in Cobol on mainframe
7. Less customer tolerance for unavailability and transaction failure
8. **Reducing IT complexity** by decommissioning in line with regulators directive
9. Combine group and local applications
10. **Higher than expected growth of transaction volumes** driven by mobile and new payments regulations
Challenge for ING and Unisys

Consequent question posed by CIO Johan Kestens (Nov 2015)  
“How to make the ClearPath Forward platform compatible with the ING Private Cloud?”
ClearPath Forward Hybrid Cloud

Enabling clients to focus on their applications.

• Hardware Defined
• ClearPath Forward Today
• Software Defined

Application Value

ADC (Application Defined Cloud)

ADD (Application Defined Datacenter)

Optimized Infrastructure

- For clients who want to own their infrastructure
- Client can leverage any Intel system

Unisys Managed Services

Off premise

Private cloud
Response to the Challenge

• Identify what is currently preventing ING BE to move to the IPC:
  
• Move from a scale-up to a scale-out topology

• Technical and operational feasibility:
  
  • Predictability of the performance in a virtualized environment
  
  • ING cloud management and operational processes/tooling
    
    • Automation Process (VM creation, etc.)
    
    • Monitoring
    
    • High Availability and DR

  • Peripheral & CPF Component qualification & operation
    
    • Backup strategy
    
    • Specific disk support requirement
Proof-points PoC

• Prove the ING applications running on MCP software Series on top of VMWare in IPC can handle 5 times the current peak volumes:
  • 100 million Direct Debit Transactions / day
  • 20 million Account Inquiries / day
  • 2 million Credit Transfers / day
  • 2.5 million Debit Card Transactions / day
• 4 test scenarios have been created based on the existing production applications, and have been executed several times, individually and concurrently.
Virtualize Unisys Mainframe as a Service on the strategic ING Platform

Current ING Belgian Data Center

ING Business Applications
MCP
Proprietary Hardware

ING Business Applications
MCP
Proprietary Hardware

ING Business Applications
MCP
Proprietary Hardware

ING Global Infrastructure

ING Business Applications
MCP
Windows

ING Business Applications
MCP
Windows

ING Business Applications
MCP
Windows

vCenter Server

Bare Metal

Bare Metal

Bare Metal

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Results

• No functional issue has been detected.

• All of these tests shown the applications are able to reach the performance targets, sometimes with some application tuning.

• As a conclusion, the ING applications can run with enough capacity margin for the future, on MCP Software Services in the ING Private Cloud, providing the application clusters are located efficiently/optimally on the MCP VMs.
Results II

- The maximum performances reached within IPC confirmed that the MCP Software Services delivers enough capacity to run the global ING Belgian production workload.

- The additional tests also demonstrated the future evolution of the MCP Software Series and the underlying Hardware and Hypervisor will even deliver much more capacity than the current proprietary systems and the current IPC virtual systems.
### Benefits

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<th>Benefits</th>
<th>Description</th>
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<td><strong>Economics</strong></td>
<td>Combines the functional support of mature systems with the ubiquitous presence of lower level functionality</td>
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<td><strong>Functional optionality</strong></td>
<td>Continuous innovation by the open source community can be supported by further evolution of functionality on top of the operating system.</td>
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<td><strong>Strategic flexibility</strong></td>
<td>Gain access to innovative platforms whilst protecting our investment in applications</td>
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<td><strong>Ease of DC deployment</strong></td>
<td>Deploying common industry stacks is replacing complex logical and/or physical moves of high-care environments</td>
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<td><strong>Volume scalability</strong></td>
<td>Marries the flexibility of the virtual machine paradigm with the established comfort of proven operating environments.</td>
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<td><strong>Better risk control</strong></td>
<td>Project risk is far less compared to reengineering core applications.</td>
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Next steps

• ING started deploying the virtual target environment within the new Strategic Data Centres and the ING Private Cloud.

• This environment is now further hardened in terms of Disaster Recovery, High Availability, Resilience, …

• The overall workload is also engineered for the collaboration between the current proprietary hardware and the target virtual machines, and this for the duration of the all migration track.

• Last but not least, ING is now migrating all its mission critical core business applications to this target virtual environment in 3 years’ time, without significant code or data change, hence minimizing any potential business disruption.
Conclusion – Best of both worlds

• 30+ year old hardened code vs & cloud technology
  This approach will allow switching to another infrastructure platform whilst keeping the applications which have been hardened and maintained for the past decades.

• Mission-critical, mature systems vs & responding to new challenges and opportunities

• This solution is also preparing and motivating the ING engineering workforce as it allows to both maintain skills and acquire new competencies.
  – Young engineers are attracted by the latest technologies.
  – Established employers need attention to mature technologies.
  – Deploying hardware operating systems on virtual machines marries both goals.
"I am very enthusiastic to take a proven solution, the Unisys MCP software, into the new world of virtual machines and private cloud solutions of ING," said Johan Kestens, CIO of ING Belgium. "This opens the perspective of better managing applications of legacy, while keeping a proven framework for running a bank. As we want to be a great digital bank with personalized service, keeping our system of records in top shape is essential. Equally, moving to new scalable digital private cloud solutions is critical."