

Christophe VISENTIN

Atos Distinguished Expert
Global Center of Excellence Digital Workplace

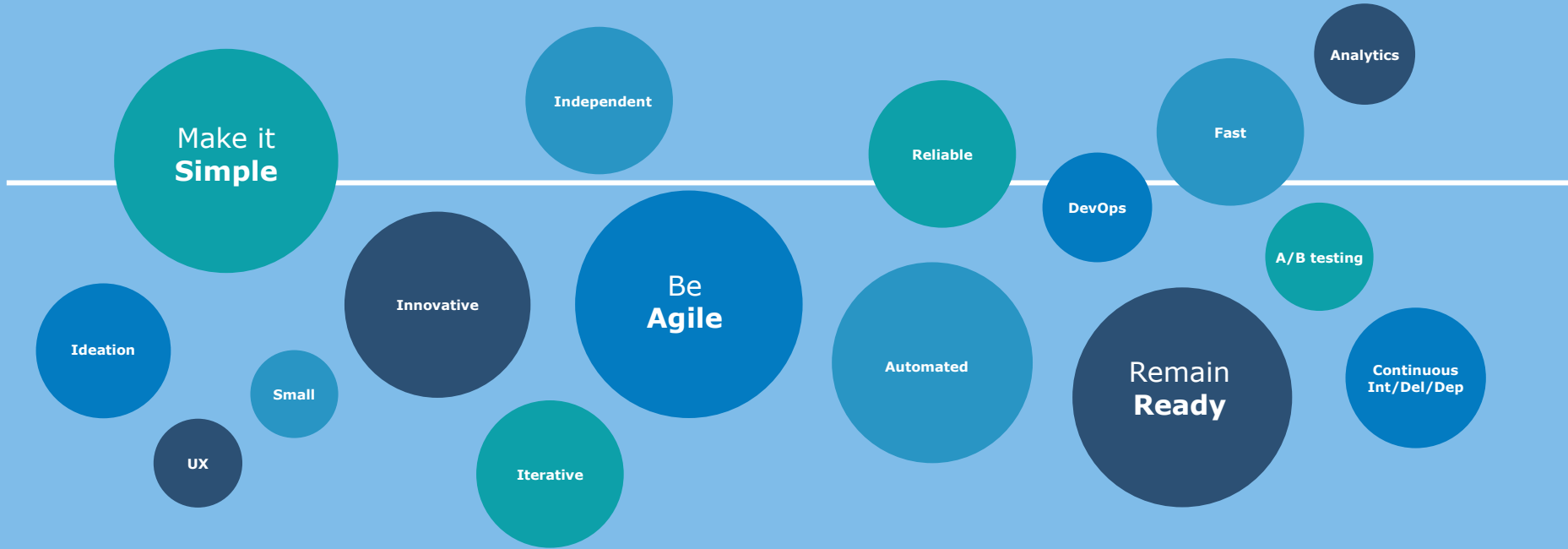
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M +33 (0)6 26 60 61 17
christophe.visentin@atos.net

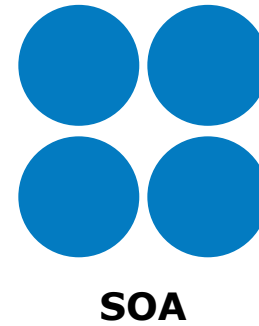
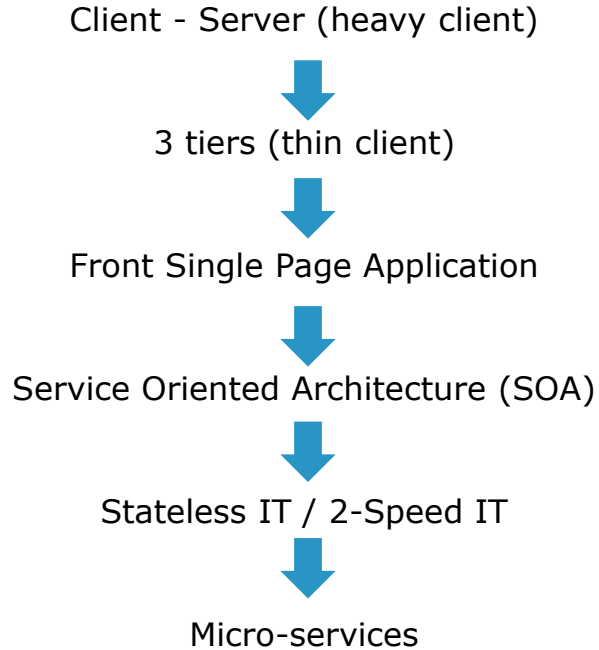
106th TC OGC – OPEN DAY
FROM SPACE TO
UNDERGROUND, DATA
AND SERVICES FOR
MANAGING TERRITORIES

**Collaborative platforms : the
technological barriers to
the creation of innovative platforms**

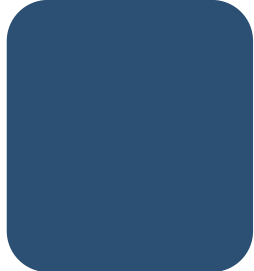
Setting up a micro-services architecture



IT Evolution



Monolithic architecture issues



Monolithic

Difficult to scale

Changes generate big impacts

Libs & data coupling

Too complex

Big teams with silos

Tunnel effect

V-cycle

Too heavy

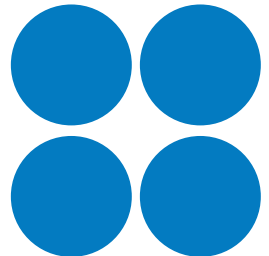
Long deployment process

Heavy system maintenance

Developers # Admins

Too long

SOA as an answer, problems remain to be solved



**Service
Oriented
Architecture**

Mitigate
coupling

Handle
reusability

Manage
layers

Usage explosion
-> Scalability

Fast changing markets
-> Innovation

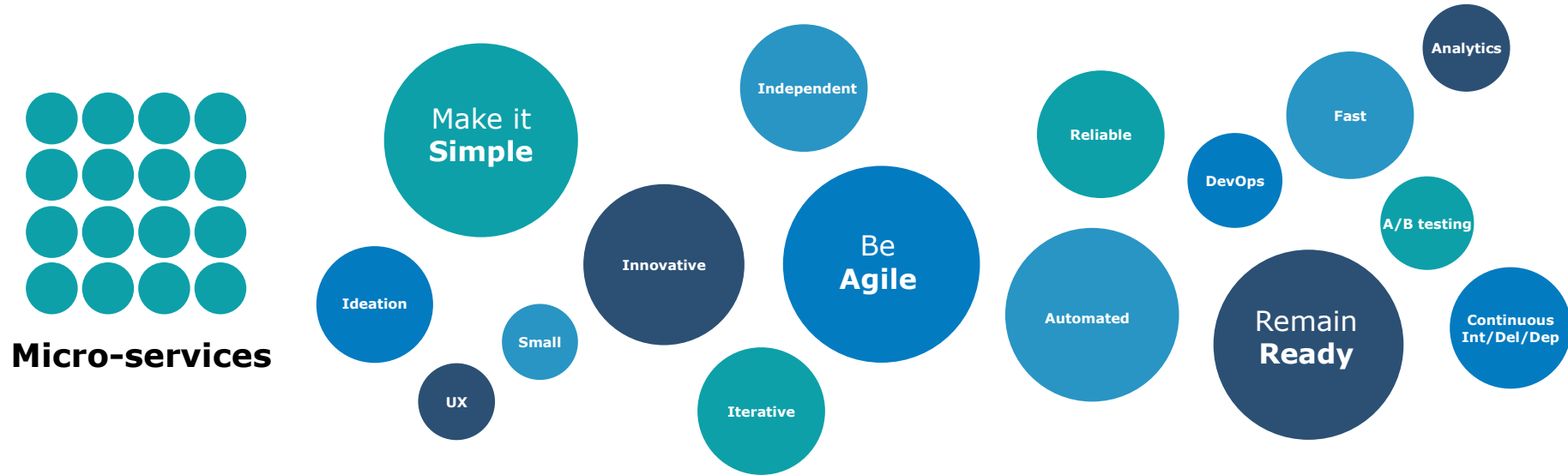
Stronger competition
-> Time to market

Still too
complex

Still too
heavy

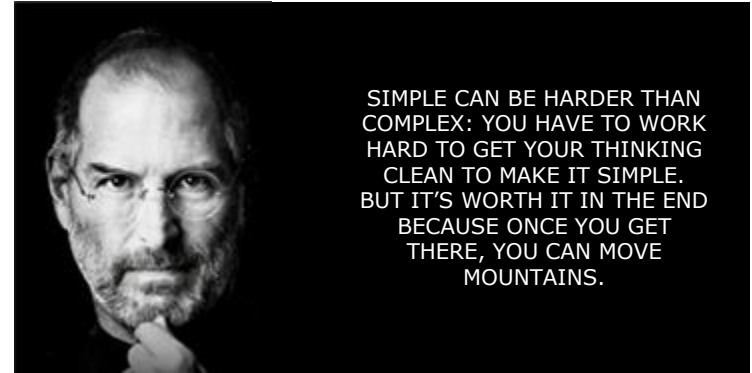
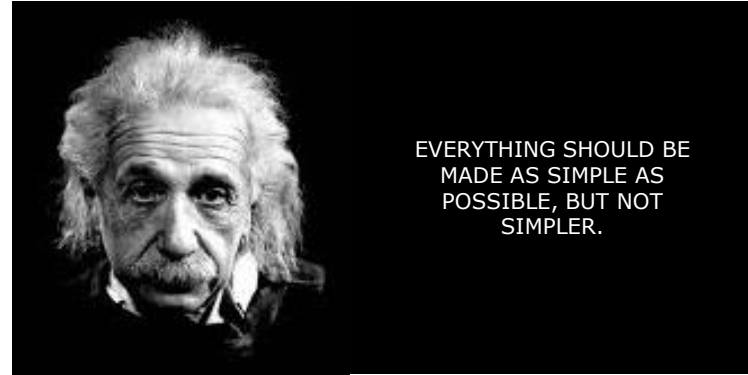
Still too
long

Why? Micro-services architecture in 3 words

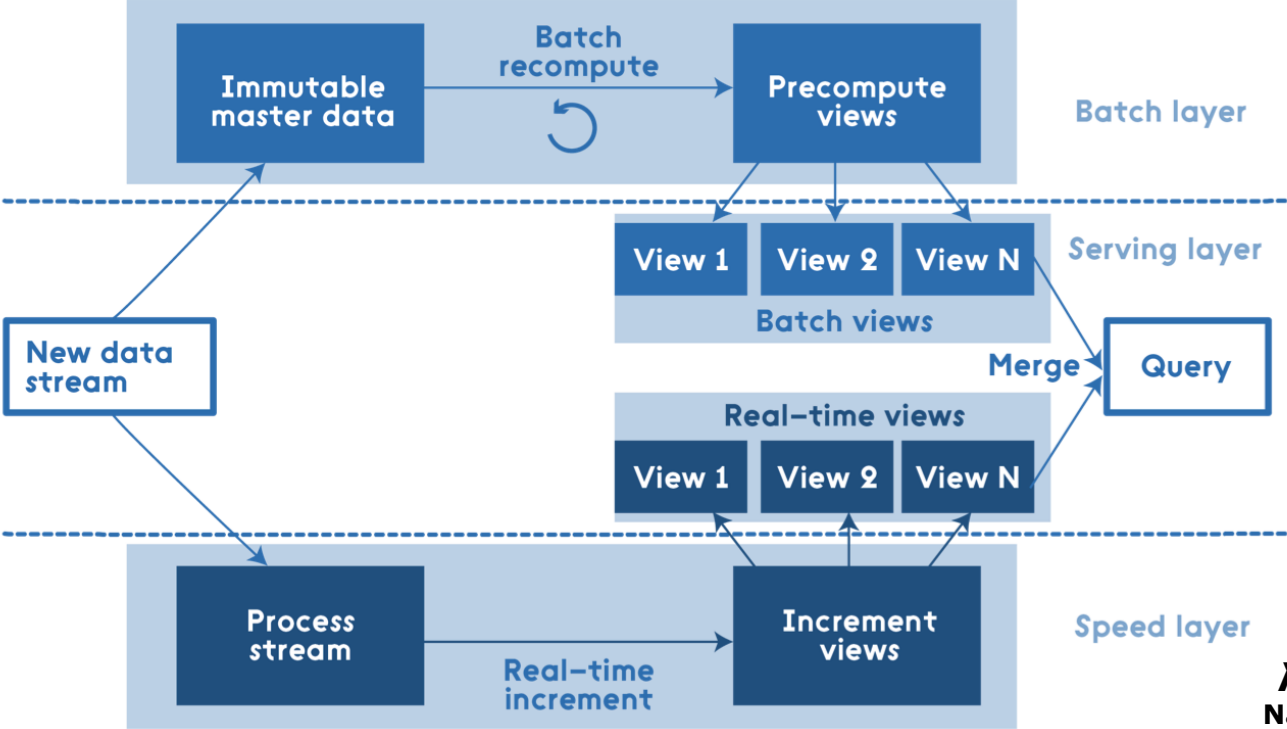


Simple

- ▶ Because small is beautiful
- ▶ Avoid coupling between services
- ▶ Provide & use API to access to data
- ▶ Have a dedicated database
- ▶ Use patterns to mitigate data concurrency
- ▶ Use batches to synchronize data (Lambda)



Lambda A for RT data access and synchronization



λ-architecture
Nathan Marz - Twitter

Agile

- ▶ Address the users needs
- ▶ Ensure the user experience
- ▶ Be iterative for innovation
- ▶ Try again and learn from errors
- ▶ Be vertical and independent
- ▶ 2 pizzas / feature teams



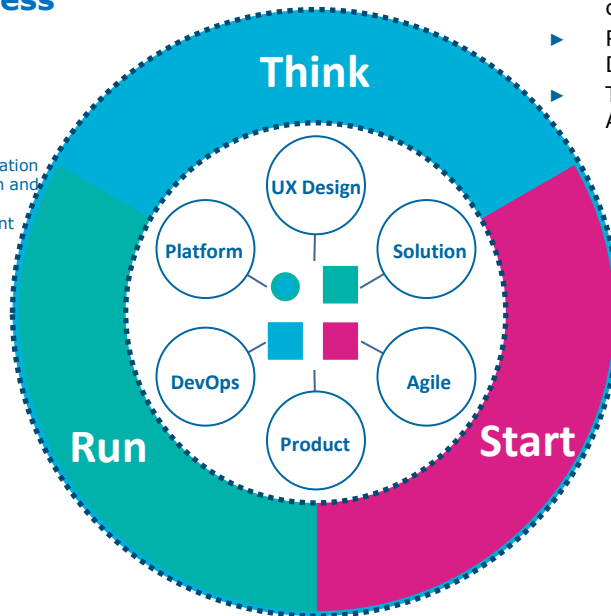
Think, Start, Run, an approach for innovation

- **Think, Start, Run.**
Tackle digital challenges, Business and IT, with a disruptive & progressive approach

- Iterations and industrialization
- Integrate the solution and deploy to target
 - Production deployment

Scale & Industrialize

- ▶ Deliver and improve the product for the whole users and customers
- ▶ DevOps and tools to deliver on resilient and scalable systems
- ▶ Results analysis, roadmap and continuous improvement



- First operational product in test (MVP)
- Solution implementation
 - Product building and testing

Understand & Design

- ▶ Co-create with the business and the users: consultants and analysts focused on the need
 - ▶ Reinvention methodologies: Design Thinking, UX, Customer journey ...
 - ▶ Technical and IT criteria studies: Architects and experts, solutions evaluation
- Use case and technical solution
- Use cases definition
 - Architecture and solution choice

Build & Validate

- ▶ Tackle project challenges with ambition and pragmatism
- ▶ An Agile team with the best digital experts and Full Stack profiles
- ▶ Realize a MVP (Minimum Viable Product) by targeting the deadline

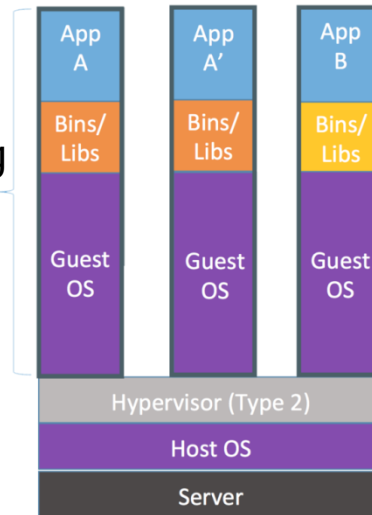
Ready

- ▶ Run Fast, address the Time-To-Market
- ▶ Automated & Reliable & Reversible
- ▶ DevOps - Containers - Orchestration
- ▶ Industrialized and automated deployment
- ▶ The target is continuous deployment in prod
- ▶ Have version n & $n+1$ in prod & A/B Testing



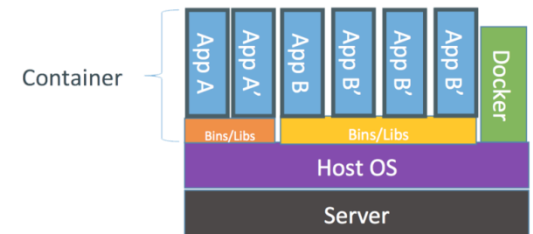
Packaging and running apps: containers' benefits

- ▶ Further accelerate app deployment
- ▶ Fast build from conf. management
- ▶ Streamline development and testing
- ▶ Handle « it works on my machine »
- ▶ Lower costs of app deployment
- ▶ Increase server consolidation



Containers are isolated, but share OS and, where appropriate, bins/libraries

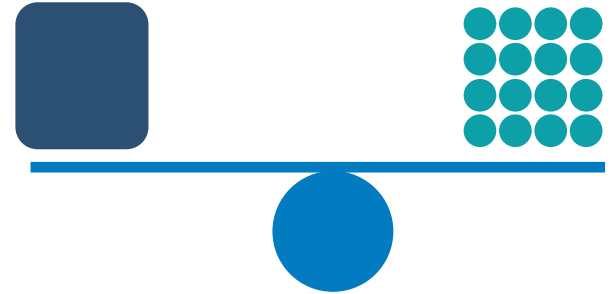
...result is significantly faster deployment, much less overhead, easier migration, faster restart



Docker Inc.

Micro-services are not suitable for all

- ▶ Micro-services patterns can be complex
- ▶ Cultural change: operations with developers
- ▶ Difficulties with limited IT means & resources
- ▶ Silos with legacy IT (the 2-speed IT paradigm)
- ▶ Feature teams overhead on large organizations
- ▶ Managing bus governance of transversal expertise



Micro-services implemented: mundi platform[©]

mundi
WEB SERVICES

MARKETPLACE NEWS HELP CONTACT

EN LOGIN REGISTER

Mundi Web Services

Copernicus Data and Information Access Service

Your one-stop shop for setting up an Earth Observation service. No need to hunt around for data, tools, infrastructure, and bring it all together. It's already here! Just open your office, upload your image processing algorithms, buy what you need through the Marketplace, and start working. You can do it all yourself, or we can do it for you. Click on the video to see an example of what we can achieve together.

Mundi Web Services - Iceberg detection

DETECTION ON ATOS COPERNICUS IAS

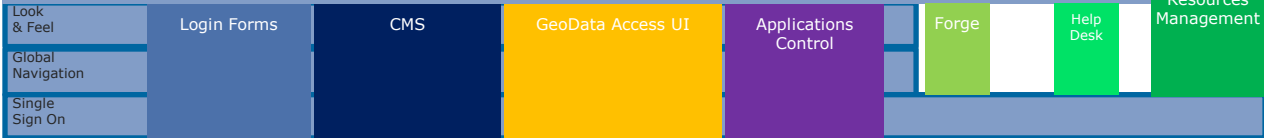
FEATURED SERVICES

<https://mundiwebservice.com/>

mundi architecture[©] overview

Front End

Copernicus Web Services Portal



Reference Front Office

Benchmark Front-office

Front-office #1

Front-office #2

Front-office #3

Front Office

3P Front-office

...

Security Identity Provider Billing Service Statistics KPI Discovery Service View Service Download Service Processing Pipeline Services Manager Data Sharing

Back Office

Identity Federation Monitoring IaaS Statistics Platform Management Data Lifecycle Management Resources Management Kubernetes Orchestrator Docker Registry



mundi architecture [©]

Use another service to log in.

- Facebook
- Google
- LinkedIn
- Microsoft
- StackExchange
- Twitter
- Yahoo

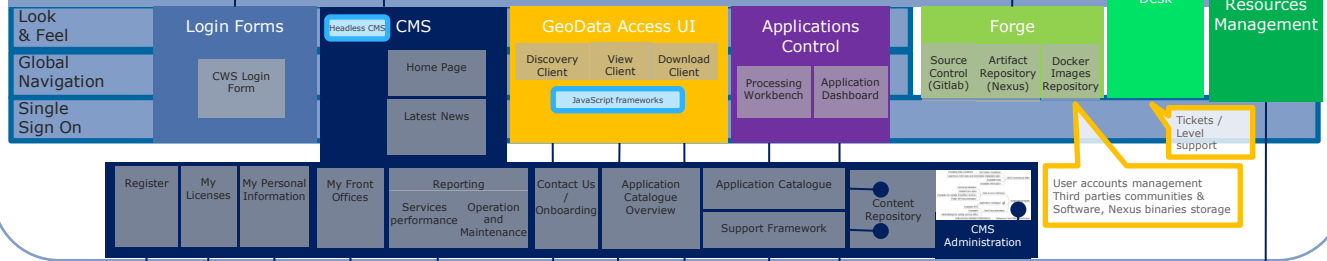
Front End

Cloud Management Console URL

https://mundiwebservices.com

https://forge.mundiwebservices.com

Mundi / Copernicus Web Services Portal



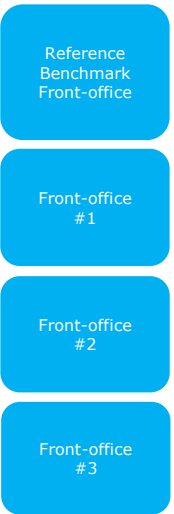
UI

SaaS

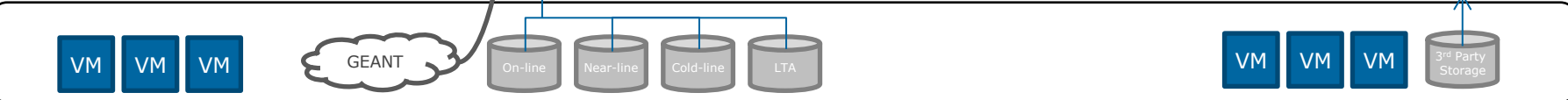
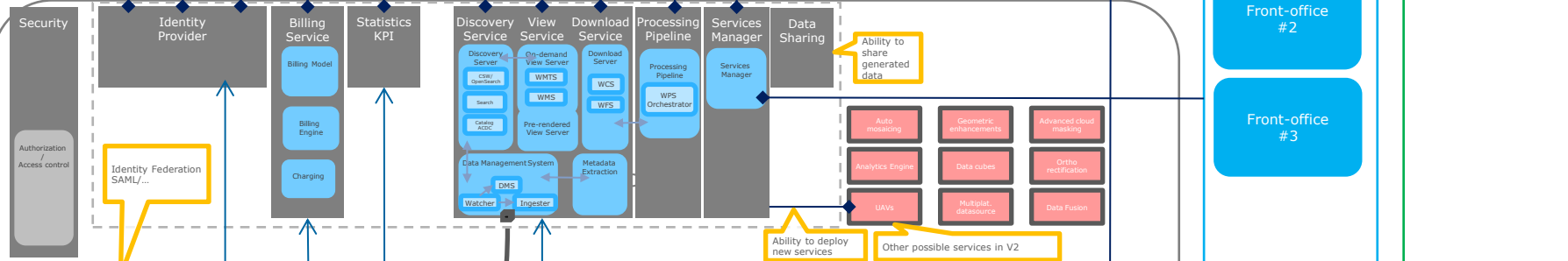
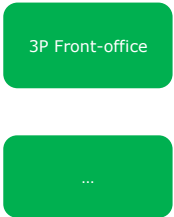
PaaS

IaaS

Reference Front Office



Front Office



Thank you

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The Atos logo is displayed in white on a blue background. It features the word "Atos" in a bold, sans-serif font. The letter "o" is stylized with a white circle inside it, creating a unique visual element.