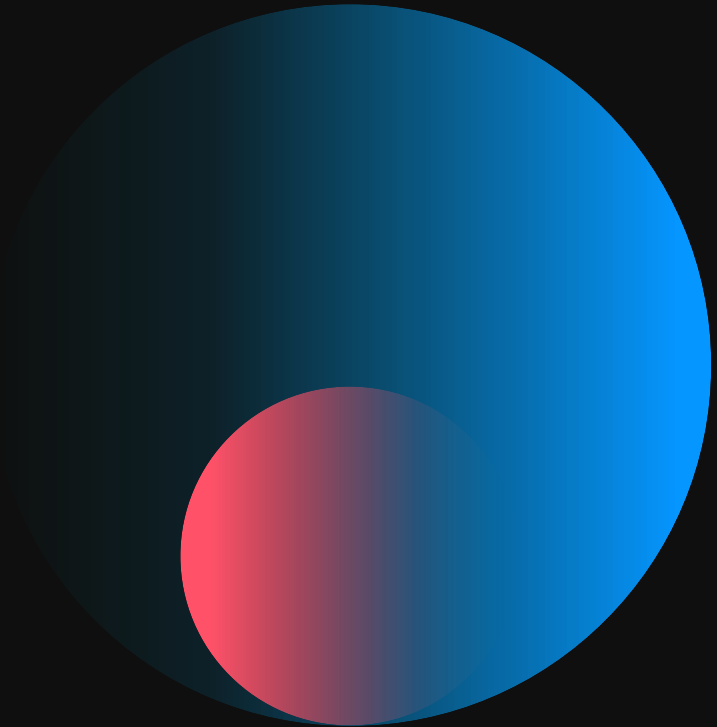


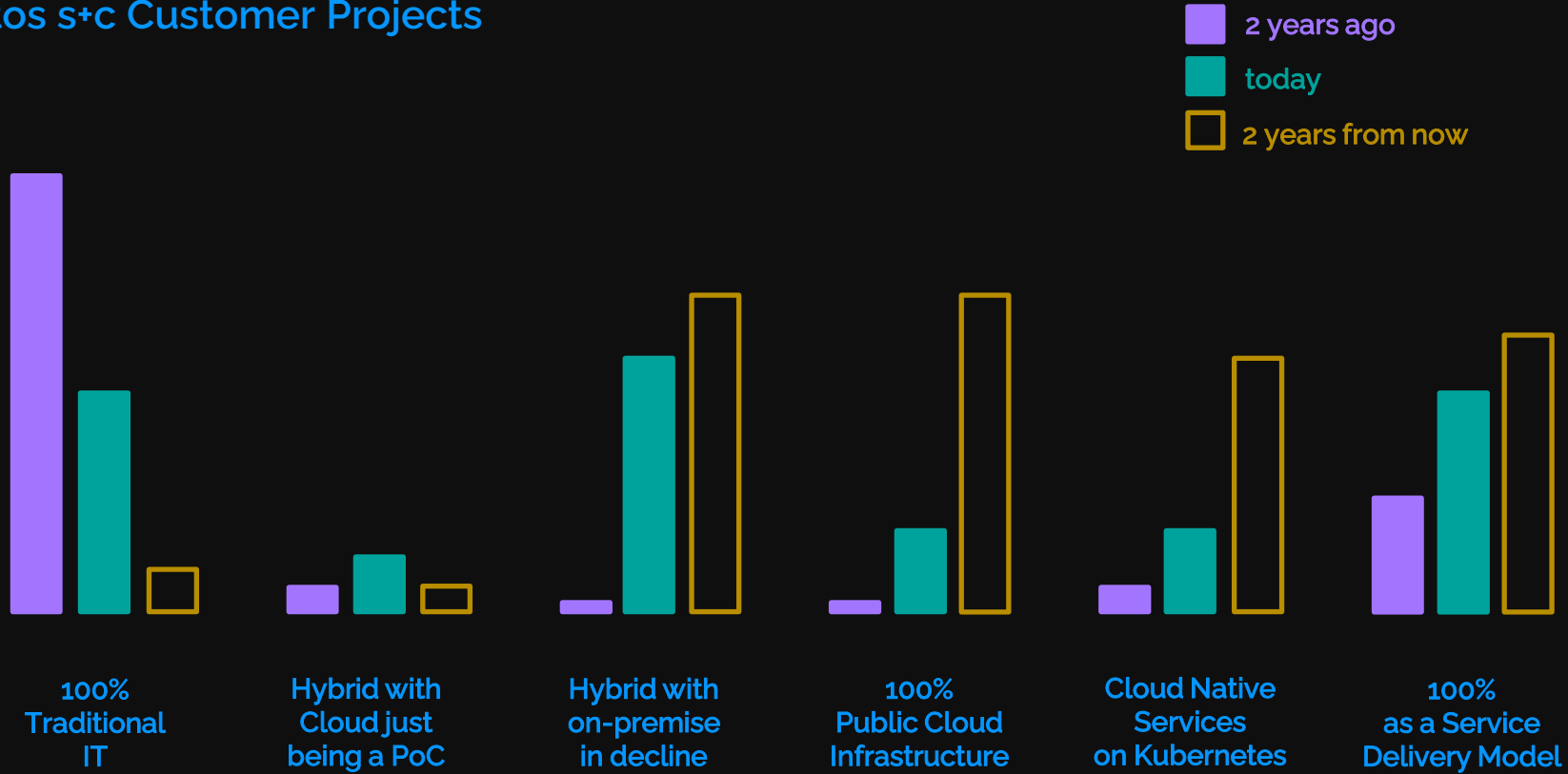
Migration Cheat Sheet

Pitfalls & Best Practices



Trend towards Cloud, Cloud Native & aaS

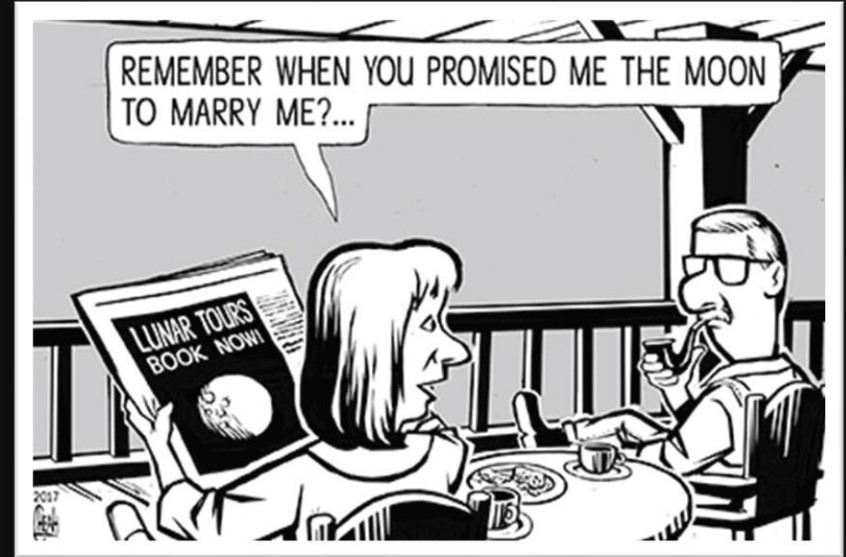
Atos s+c Customer Projects



Lessons Learned

Everyone in IT seems to promise the moon

We performed dozens of hands-on migration projects



Lets' fact-check !

Fact-Check Cheat Sheets

Public Cloud Infrastructure

What is in the box?
 Engineering IT in Public Cloud Infrastructure

What the Hypervisor promise	What you get
Fast and automated resource using an shared	<ul style="list-style-type: none"> Think about all the removed hosts with hardware lifecycle Automating resources works just fine On-demand pricing much higher than prepaid - carefully balance cost Scaling capabilities are limited - no hypervisor for many years instances

Atos

What is in the box?
 Engineering IT in Public Cloud Infrastructure

What the Hypervisor promise	What you get
Specialized services and high-end resources to meet Engineering requirements	<ul style="list-style-type: none"> Clouds are in the large Clouds are on-premise based than what you can get for traditional IT Shared resources often do not have a particular performance - a dedicated server has, but at a price Traditional requires your workflow and tool - otherwise on-premise Cloud just as a virtual machine platform

Atos

What is in the box?
 Engineering IT in Public Cloud Infrastructure

What the Hypervisor promise	What you get
Security and reliability are suitable for production	<ul style="list-style-type: none"> Availability to cope with local continuity management concepts Main aim to use multiple regions and availability zones You need to trust the Cloud provider - and what governments might do with your data

Atos

What is in the box?
 Engineering IT in Public Cloud Infrastructure

What the Hypervisor promise	What you get
Public Cloud infrastructure is less expensive as local infrastructure	<ul style="list-style-type: none"> True for small, greenfield setups, and TCO score Apply and shifting rates to a Cloud provider comes with a price - do the math You cover a strong Cloud vendor lock-in - multi-cloud and/or open source for the long term

Atos

Cloud Native Architecture

What is in the box?
 Engineering IT with Cloud Native Architectures

What the Cloud Native looks promise	What you get
Smaller running on a Container / Kubernetes cluster	<ul style="list-style-type: none"> Kubernetes is production ready, not limited, Cloud native, and the Cloud Kubernetes services Kubernetes can take into consider the effort for CI/CD, monitoring, dashboard, but you need to care about other tools in the ecosystem

Atos

What is in the box?
 Engineering IT with Cloud Native Architectures

What the Cloud Native looks promise	What you get
DevOps: Dev teams can create their own Containers, without the help from IT staff	<ul style="list-style-type: none"> Containers can be run without the need to be packaged by IT staff A Container can consist of multiple, non-running code, microservices, data, etc. - mainly hard to have a security and quality gate in place Not all applications can be run in a Container

Atos

What is in the box?
 Engineering IT with Cloud Native Architectures

What the Cloud Native looks promise	What you get
Cloud Native architectures are more modern and ready major incident free	<ul style="list-style-type: none"> The self-healing and auto-recovery mechanisms exist The Kubernetes Cluster has to be created with intention in mind Other capabilities as services must be changed to implement, the Cloud Native readiness concept

Atos

What is in the box?
 Engineering IT with Cloud Native Architectures

What the Cloud Native looks promise	What you get
Cloud Native architectures are more agile than traditional IT	<ul style="list-style-type: none"> Existing an existing Kubernetes Cluster is easy, especially in Cloud infrastructures Apply to other limited for non-technical processes - Continuous change processes have to be introduced with CI/CD models Choosing the right tools is challenging - many startups might lose the market

Atos

As a Service Model

What is in the box?
 Engineering IT As a Service

What the As a Service provider promise	What you get
Handle free IT Services	<ul style="list-style-type: none"> Accountability is shifted to the provider the host is shifted with it Less work remains with the customer - you need to involve architect, project managers for a best provider selection You need to partly give up control - its reserved on-premise change

Atos

What is in the box?
 Engineering IT As a Service

What the As a Service provider promise	What you get
Pay as you go reduces cost for assets	<ul style="list-style-type: none"> The value of assets in your financial report decreases For being care about risks, organizational work and having quick responses, all but the previous one, premium - do the math

Atos

What is in the box?

Engineering IT in Public Cloud Infrastructure

What the Hyperscalers promise

Fast and automated resource sizing on demand

What you get



Think about all the removed hassle with hardware lifecycle

Autoscaling resources works just fine – if you use it



On demand pricing is much higher than prepaid – carefully balance cost

Scaling capabilities are limited – no hyperscaler has many spare resources

What is in the box?

Engineering IT in Public Cloud Infrastructure

What the Hyperscalers promise

Specialized services and high-end resources to match Engineering requirements

IoT interfaces, data mover caches, GPUs, low-latency storage, ...

What you get



Capabilities in the large Clouds are on par if not better than what you can get for traditional IT



Shared resources often do not have a predictable performance – a dedicated tenant has, but at a price

You must adjust your workflows and tools – otherwise you use Cloud just as a virtual machine platform

What is in the box?

Engineering IT in Public Cloud Infrastructure

What the Hyperscalers promise

Security and reliability are suitable for production

There are no major risks in using Clouds

What you get



Availability is compliant with typical continuity management concepts



Make sure to use multiple regions and availability zones

You need to trust the Cloud provider – and what governments might do with your data

What is in the box?

Engineering IT in Public Cloud Infrastructure

What the Hyperscalers promise

Public Cloud Infrastructure is less expensive as local infrastructure

What you get



True for small greenfield setups and TCO scope



Agility and shifting risks to a Cloud provider comes with a price – do the math

You create a strong Cloud vendor lock-in – multi-cloud and hybrid reduces this risk

What is in the box?

Engineering IT with Cloud Native Architectures

What the Cloud Native tools promise

Services running on a Container /
Kubernetes platform

Less effort for OS maintenance & patching

What you get



Kubernetes is production ready, esp.
RedHat OpenShift and the Cloud
Kubernetes services



Kubernetes can be quite complex – the
effort for OS maintenance decreases but
you need to care about other tools instead

What is in the box?

Engineering IT with Cloud Native Architectures

What the Cloud Native tools promise

DevOps:
End-users can create their own Containers
without the help from IT staff

What you get



Containers can be run without the need to
be packaged by IT staff



A Container can consist of malware, non-
working code, incompliant data use, etc. –
Make sure to have a security and quality
gate in place

Not all applications can be run in a
Container

What is in the box?

Engineering IT with Cloud Native Architectures

What the Cloud Native tools promise

Cloud Native architectures are more resilient and mostly major incident free

What you get



The self-healing and auto-recovery mechanisms work



The Kubernetes Cluster has to be created with redundancy in mind

Client application and services must be changed to implement the Cloud Native availability concept

What is in the box?

Engineering IT with Cloud Native Architectures

What the Cloud Native tools promise

Cloud Native architectures are more agile than Traditional IT

What you get



Extending an existing Kubernetes Cluster is easy, especially in Cloud infrastructures



Agility is often limited by non-technical processes – Cumbersome change processes have to be replaced with Canary models

Choosing the right tools is challenging – many startups might leave the market

What is in the box?

Engineering IT As a Service

What the As-a-Service provider promise

Hassle-free IT Services

What you get



As responsibility is shifted to the provider, the hassle is shifted with it



Less work remains with the customer – you need to reduce architects, project managers for a lean provider steering

You need to give up control – this requires a mindset change

What is in the box?

Engineering IT As a Service

What the As-a-Service provider promise

Pay as you go reduces cost for assets

What you get



The value of assets in your financial report decreases



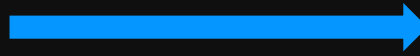
For taking care about risks, organizational work and having spare resources at hand the provides bills premium – do the math

Still Confused?



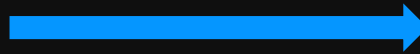
What should you do?

You want to accelerate
your innovation pace?



Switch to
Cloud / CloudNative / aaS

What about cost?



Switch from
managing access to limited
resources
to most effective knowledge
generation

1:00 pm –
1:15 pm

Welcome

Matthias Schempp, Vorstand / Head of Atos science + computing

1:15 pm –
2:00 pm

HPC Cloud & As a Service - Key to flexible high-end IT resources or insecure cost-trap?

Marcus Camen, Chief Technology Officer

2:00 pm –
2:30 pm

Nimbix – Unified On Demand HPC As a Service

Steve Hebert, VP Global Head of Atos Nimbix HPC Cloud Competency Center

3:00 pm –
3:30 pm

Container & Kubernetes HPC - Hands-on deep dive to modern simulation, AI & analytics

Janina Dynowski, Head of science + computing Nimbix Cloud
Holger Gantikow, Chief HPC Landscape Architect

3:30 pm –
4:00 pm

Cloud Security - Is your engineering data at risk?

Peter Curth, Head of Atos Cloud Operations

4:00 pm –
4:30 pm

Migration Cheat Sheet - Pitfalls and best practices

Open Panel



High Performance Computing

On-Prem /
Cloud

As-a-Service
Models

Unified Simulation /
AI / Analytics

Security /
Compliance

Container /
Kubernetes

On-Demand /
Bursting