



Microsoft Azure Cloud



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2019 – 2021

Customer Advisory - SAS Viya og SAS Cloud

Microsoft

Dec. 2021 –

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Agenda

Hvad er Cloud?

Hvorfor Cloud?

Hvad er Cloud?

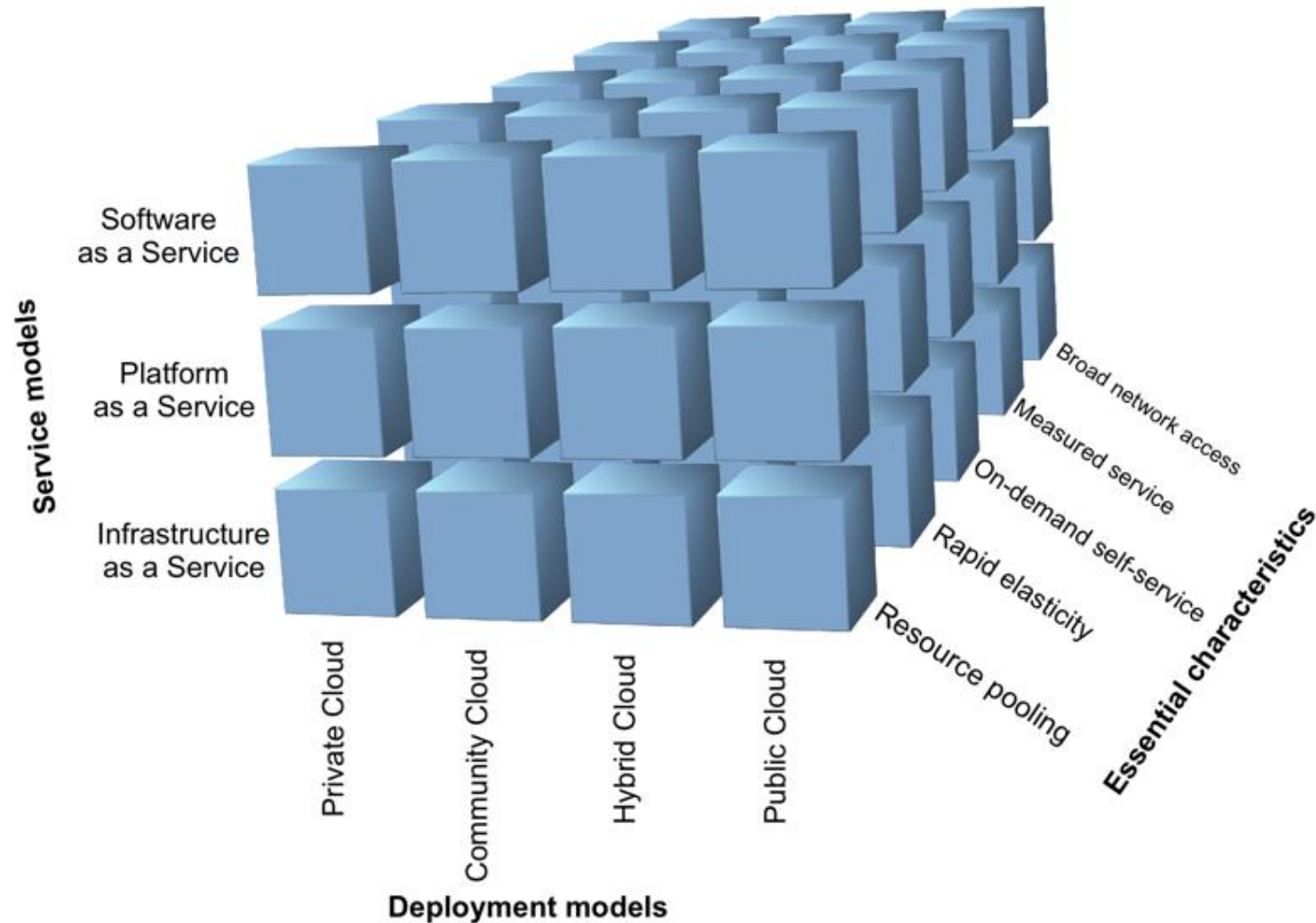
Definition

Typer af services

Overblik over komponenter

Hvad er Cloud?

The NIST Cloud Cube – en definition af cloud



Hvad er Azure?

Azure Regioner er tre separate datacentre uden single-point-of-failure



60+ Azure regions
200+ Datacenters
4M Servers

● Available region ⚙️ Announced region ◌ Availability zones

Hvad er Cloud?

Cloud

er en lang række af forskellige services...

samlet i en sammenhængende platform...

som muliggør organisationer hurtigt at bygge, produktionssætte, drifte (og stoppe!) løsninger...

med et minimum af kapitalinvestering

Create a resource ...

Get Started

Recently created

Categories

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

Databases

Developer Tools

DevOps

Identity

Integration

Internet of Things

IT & Management Tools

Media

Migration

Mixed Reality

Monitoring & Diagnostics

Networking

Popular Azure services [See more in All services](#)



Virtual machine

[Create](#) | [Learn more](#)



Kubernetes Service

[Create](#) | [Docs](#) | [MS Learn](#)



Azure Cosmos DB

[Create](#) | [Docs](#) | [MS Learn](#)



Function App

[Create](#) | [Docs](#)



SQL Database

[Create](#) | [Docs](#) | [MS Learn](#)



Storage account

[Create](#) | [Docs](#) | [MS Learn](#)



DevOps Starter

[Create](#) | [Docs](#) | [MS Learn](#)



Web App

[Create](#) | [Docs](#) | [MS Learn](#)

Hvad er Cloud?

Tre kategorier af Cloud services – afvejning mellem fleksibilitet vs. ease-of-use



IaaS

Infrastructure-as-a-Service

host



PaaS

Platform-as-a-Service

byg



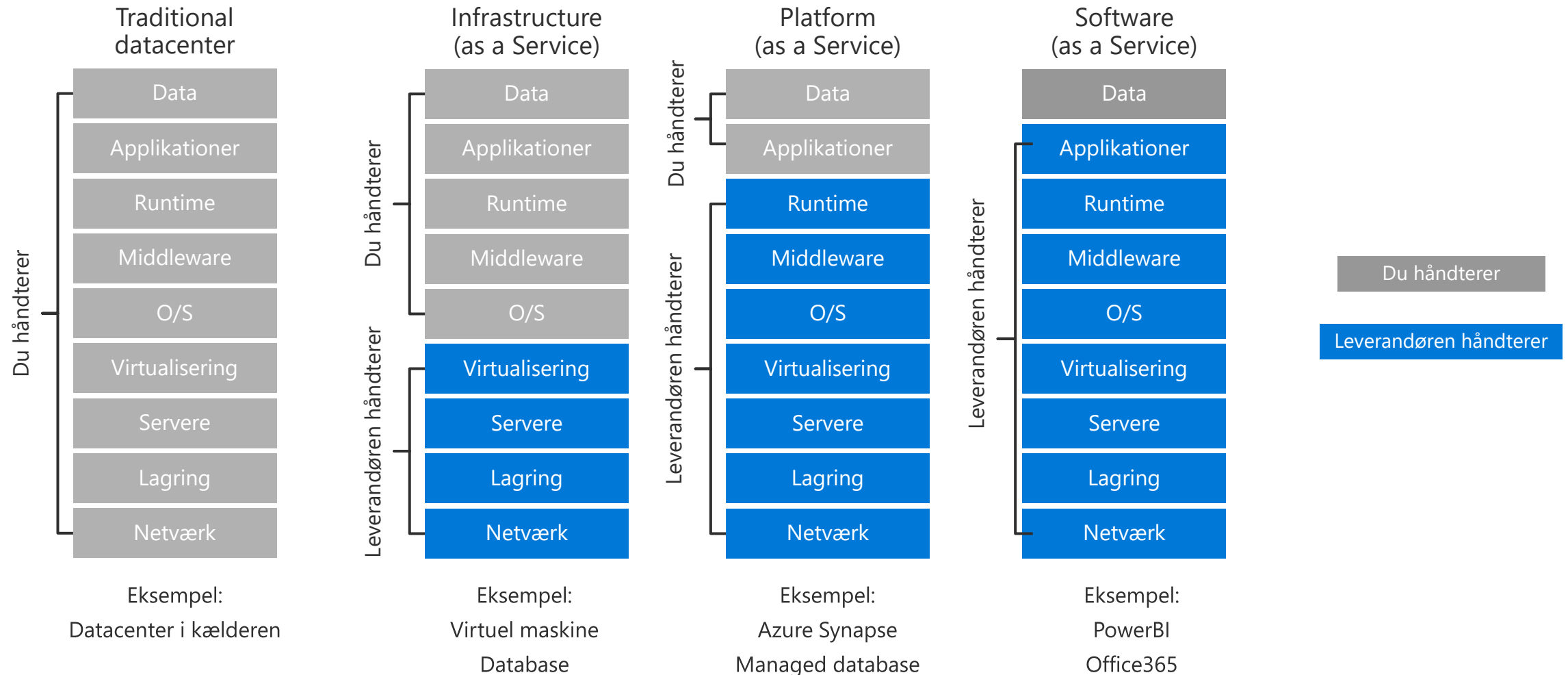
SaaS

Software-as-a-Service

brug

IaaS, PaaS og SaaS

Jo højere op man bevæger sig i laget, jo mindre håndterer man selv



Platform Services

Security & Management

- Security Center
- Portal
- Azure Active Directory
- Azure AD B2C
- Multi-Factor Authentication
- Automation
- Scheduler
- Key Vault
- Store/Marketplace
- VM Image Gallery & VM Depot

Media & CDN

- Media Services
- Media Analytics
- Content Delivery Network

Integration

- API Management
- BizTalk Services
- Logic Apps
- Service Bus

Compute Services

- Container Service
- VM Scale Sets
- Batch
- RemoteApp
- Dev/Test Lab

Application Platform

- Web Apps
- Mobile Apps
- API Apps
- Cloud Services
- Service Fabric
- Notification Hubs
- Functions

Developer Services

- Visual Studio
- Mobile Engagement
- VS Team Services
- Xamarin
- Application Insights
- HockeyApp

Data

- SQL Database
- SQL Data Warehouse
- DocumentDB
- SQL Server Stretch Database
- Redis Cache
- Storage Tables
- Azure Search

Intelligence

- Cognitive Services
- Bot Framework
- Cortana

Analytics & IoT

- HDInsight
- Machine Learning
- Stream Analytics
- Data Catalog
- Data Lake Analytics Service
- Data Lake Store
- IoT Hub
- Event Hubs
- Data Factory
- Power BI Embedded

Hybrid Cloud

- Azure AD Health Monitoring
- AD Privileged Identity Management
- Domain Services
- Backup
- Operational Analytics
- Import/Export
- Azure Site Recovery
- StorSimple

Infrastructure Services

Compute

- Virtual Machines
- Containers

Storage

- Blob
- Queues
- Files
- Disks

Networking

- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- App Gateway

Datacenter Infrastructure



Hvorfor Cloud?

Innovation

Klima og Co2

Økonomi (kostbesparelse)

Kompetencefokus

Sikkerhed

Fleksibilitet

Skalerbarhed

Driftssikkerhed

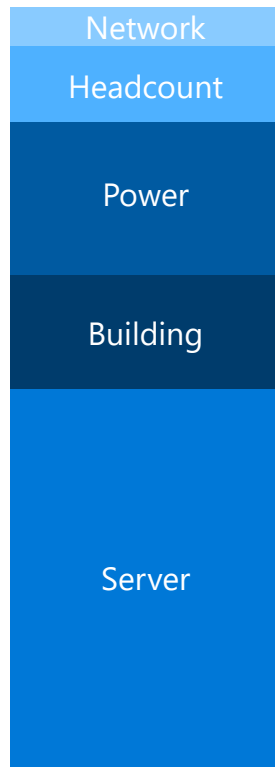
Fremtidssikring

Muligheder for reduktion i datacenter footprint ved anvendelse af cloud

On-premises data centre er typisk bygget med overkapacitet for at håndtere peaks. Samtidig har datacentre og server kapacitet en lead time, som resulterer i storindkøb.

Dette medfører overinvestering og ubrugt kapacitet

On-premises cost

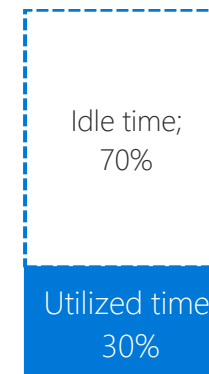


Data center capacity



Optimization opportunity

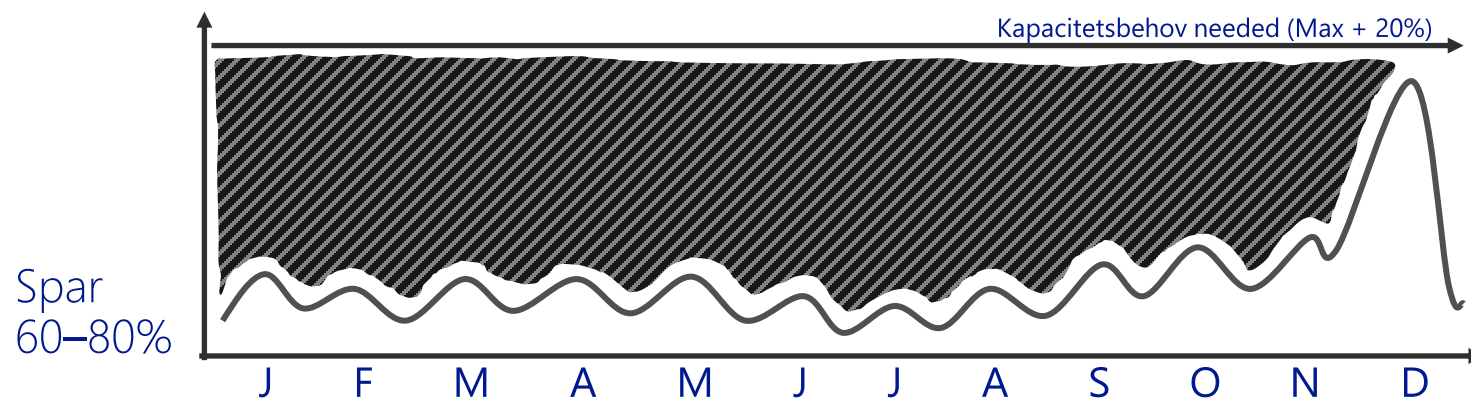
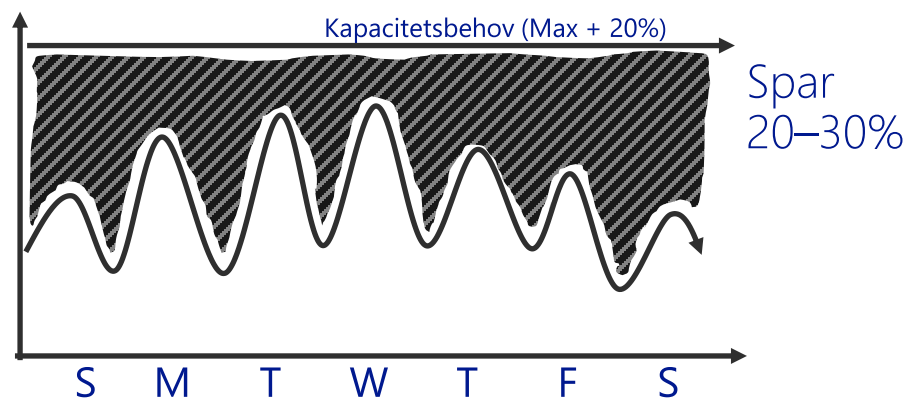
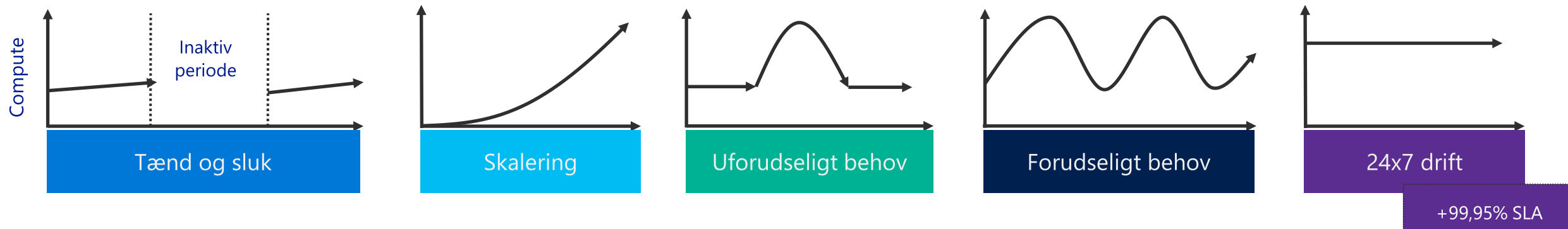
Server capacity



MW = Megawatts

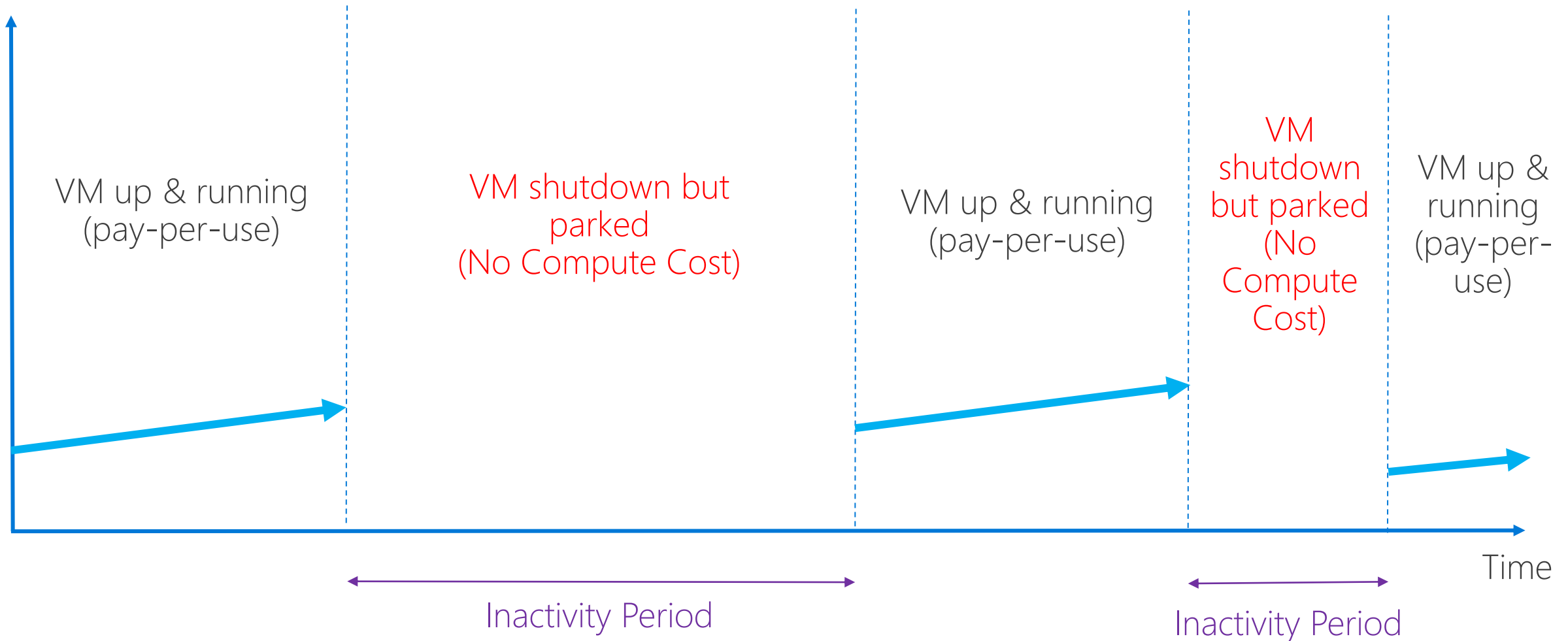
Hvorfor Cloud - Økonomi

Cloud giver mulighed for at skabe sammenhæng mellem **behov** og **kapacitet**



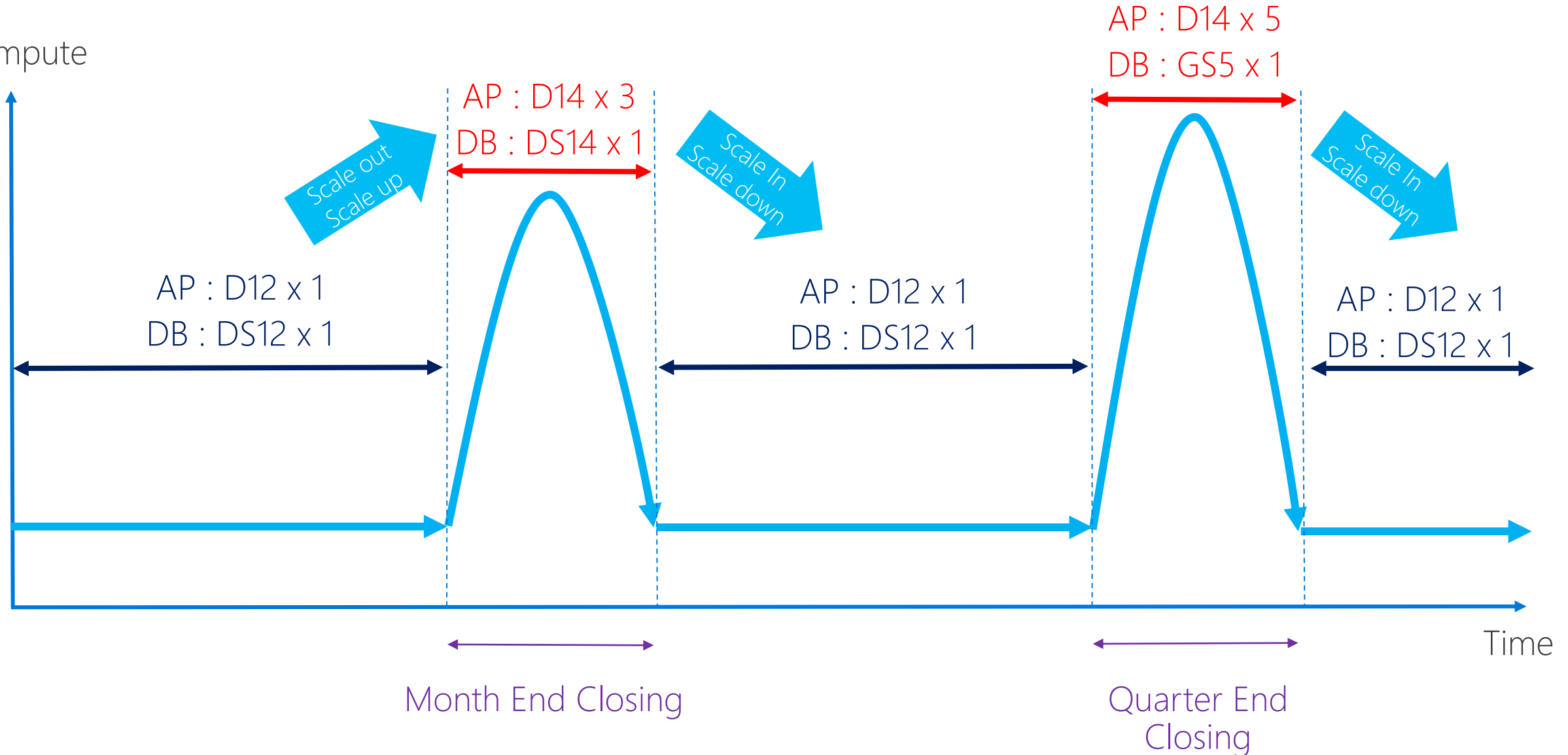
On and Off

Compute



Predictable/Unpredictable Bursting

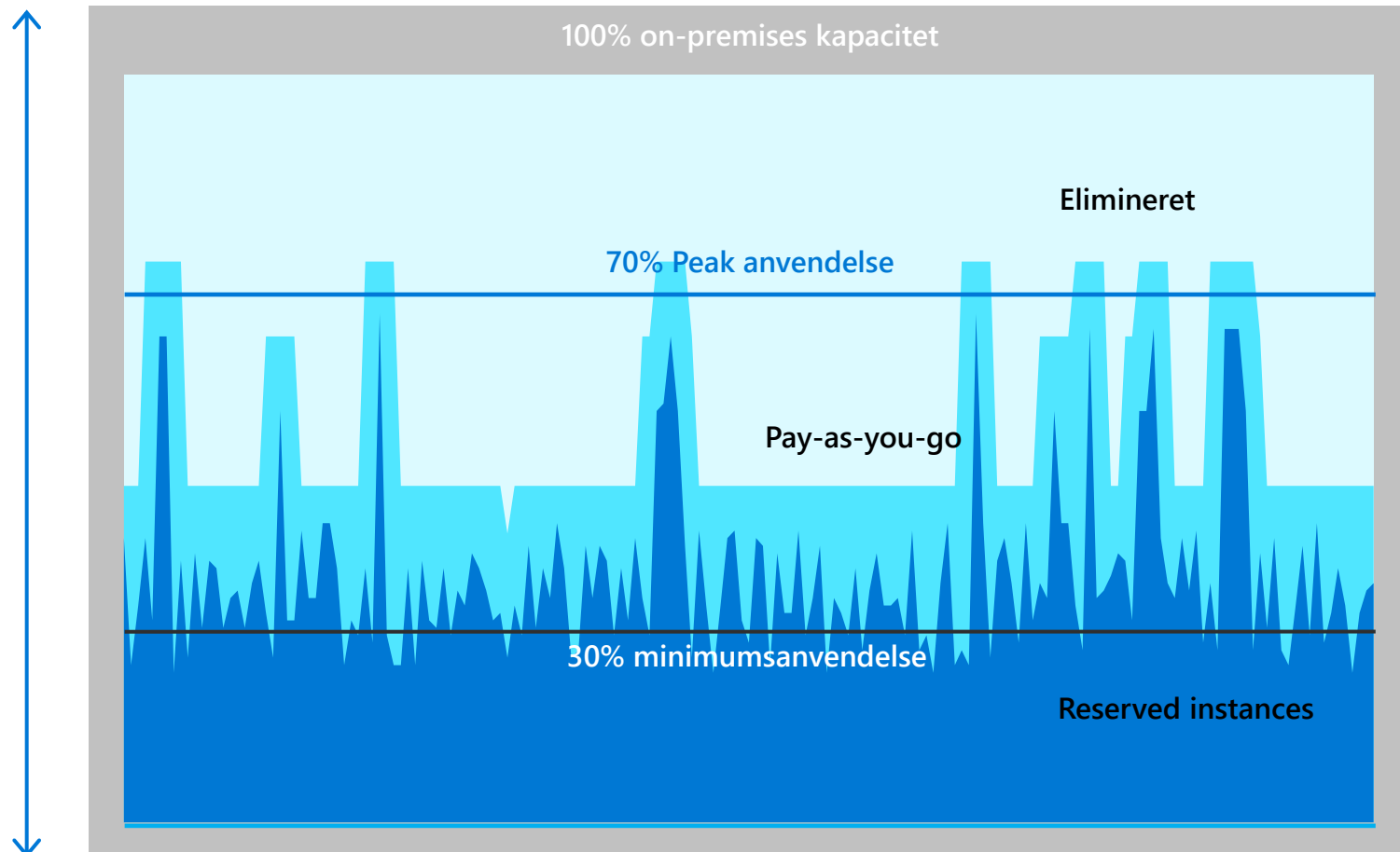
Compute



Hvorfor Cloud - økonomi

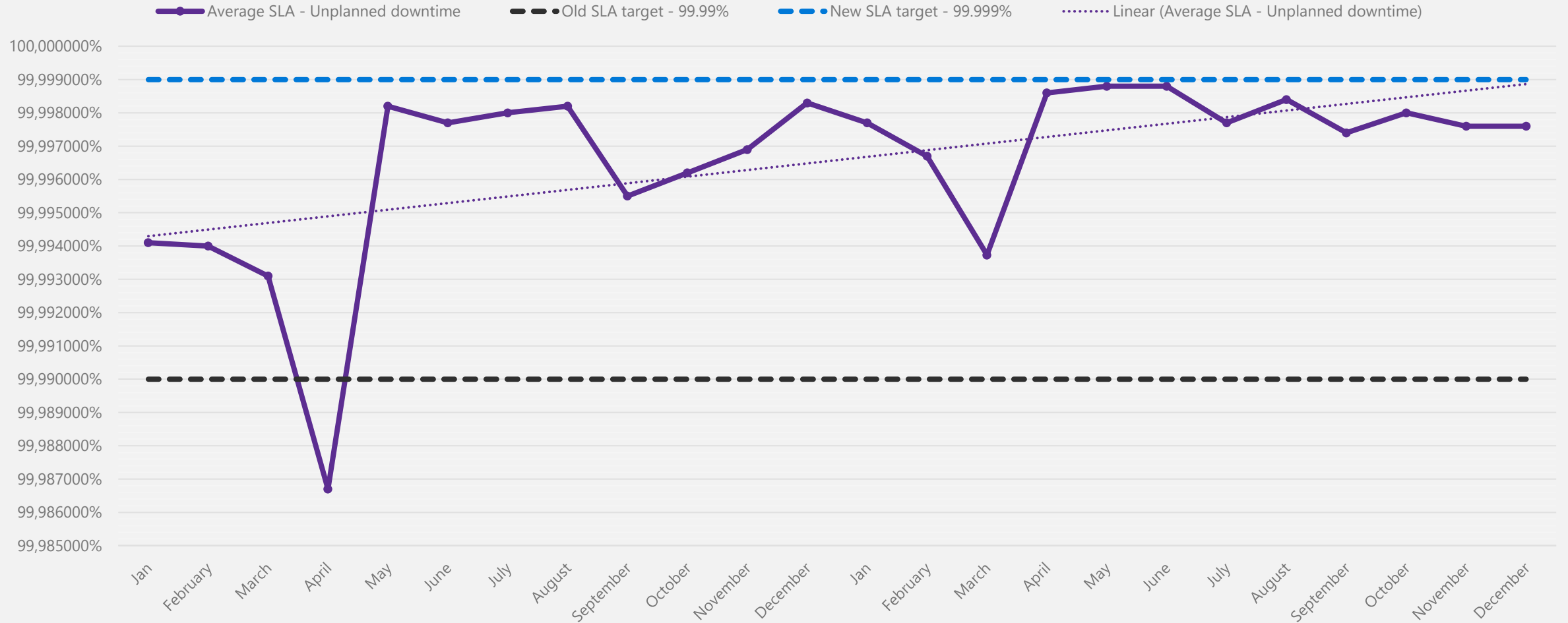
Kombination af "Reserved Instance" og "Pay-as-you-go" giver optimalt setup

- C** Ubrugt kapacitet – Ekstra kapacitet som sjældent bruges
Øjeblikkelig besparelse
- B** Variationer på toppen af normalt behov – sæsonudsving eller andre spikes
Timeafregnet på anvendt tid (sekunder/minutter/timer)
- A** Normalt behov – dagligt drift, hvor behovet er kendt
Anvendelse af "Reserved Instance"




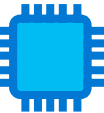

Reliability & uptime continues to be a priority

Average VM Availability



Hvorfor Cloud – Flexibilitet, innovation

Azure giver fleksibilitet og grobund højere innovation

	Traditional IT	Cloud supporteret
 Indkøb	Uger/måneder at købe og installere servere	Sekunder/minutter med self-service adgang
 Anvendelse	1 computer i 100 timer	100 computer i 1 time
 Risiko	Stor indledende omkostning og låst miljø	Minimal indledende investering og fleksibelt miljø

Azure er den cloud med flest certificeringer



Certificeringer og sikkerhed

GLOBAL	         														
US GOV	         														
INDUSTRY	             														
REGIONAL	       														
	         														

Cloud billing models and offers differ from on-premises but create meaningful savings opportunities



Azure Hybrid Benefit

A licensing benefit that helps you to significantly reduce the costs of running your workloads in the cloud.
- WinDC dual use right



Azure Reservations

Save up to 72%³ compared to pay as you go pricing



Dev/Test Offer & Azure Dev/Test Labs

Quickly provision and deploy. Discounted rates on popular services⁴



Spot Virtual Machines

Scale compute at deep discounts, up to 90% vs. pay as you go pricing⁵

(1) <https://azure.microsoft.com/en-us/pricing/hybrid-benefit/>
(2) <https://azure.microsoft.com/en-us/reservations/> (For SLES and REHL)
(3) <https://azure.microsoft.com/en-us/reservations/>
(4) <https://azure.microsoft.com/en-us/pricing/dev-test/>
(5) <https://azure.microsoft.com/en-us/pricing/spot/#overview>
(6) <https://visualstudio.microsoft.com/vs/pricing-details/>

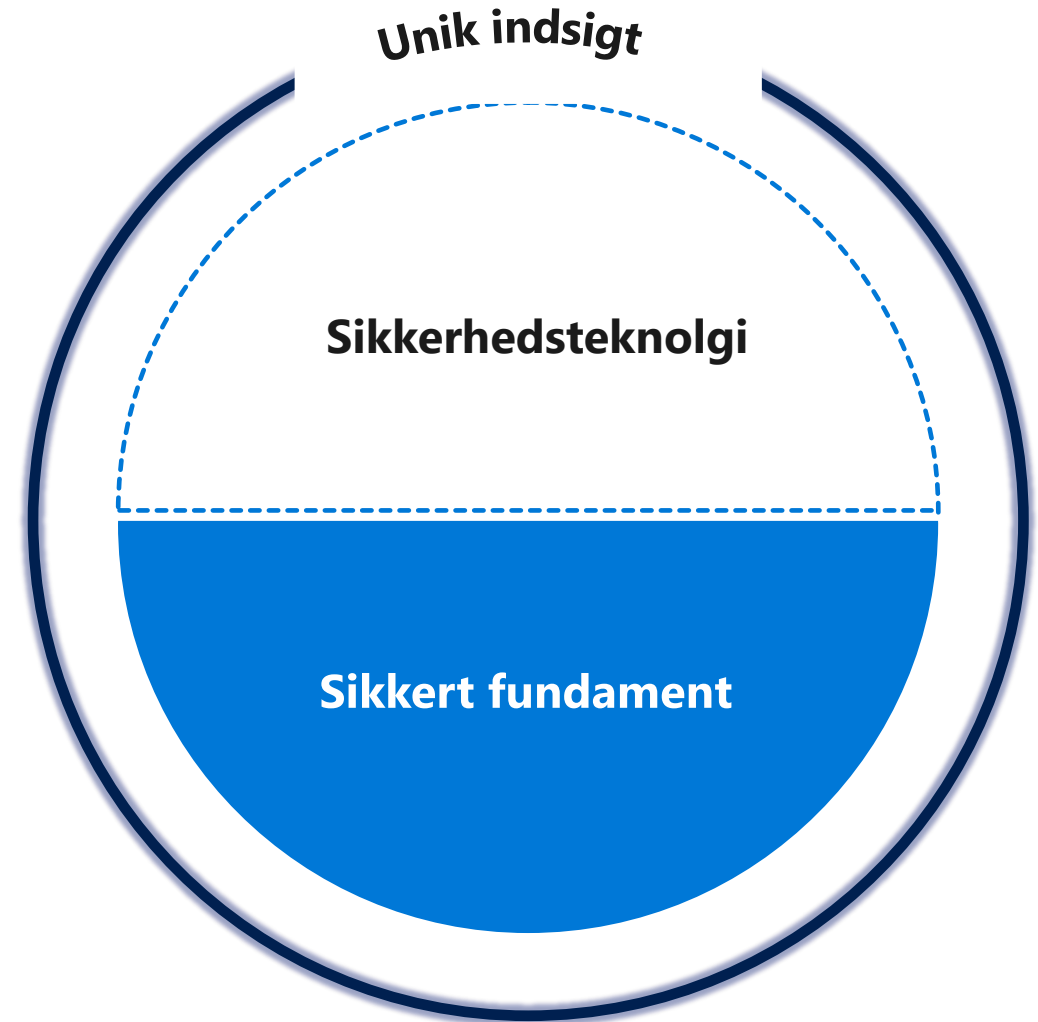
Sikkerhed x10.000

\$1 mia.+ årlige investeringer

- \$20 mia. fra 2020-2025

Over 3500 sikkerhedseksperter

+6 trillioner signaler undersøgt



Cloud business value extends beyond cost



"It's hard to put a number on high availability and increased security...you can't put a number on a feeling, but it is a strong driver..."

"It's about spinning up and down. Flexibility. Speed to market. If you get it wrong, you can just chuck it away, and there's no capex on your books. That flexibility that gives you justification for cloud, not just financial benefits."

"Agility, integration, skills etc. more important than economics. But if you look at the agility, integration, the it's a better sales pitch. It's about the other landscape that is there. And indeed ability to scale up, down, etc."

"Economics is just one part of justifying our cloud investments. We have several guidelines. Includes time to value, agility, security. Much harder to measure those in financial terms. We take a risk-based approach. When we look at steps, it's not just about economics for us or financial value. There are also hard to measure things like time to market, agility."

"The real benefits we see are flexibility, not having to manage physical data centers, faster time to market, i.e. not waiting on physical devices to arrive and be installed."