



Microsoft Azure Solution Summit 2023

Effizienz trifft Innovation: Rechenzentrum Reloaded
bei der Knorr-Bremse AG



Michael Hilzinger, September 26th 2023

“Enabling the Business“ requires agile IT, modern architecture and operating model

- Supporting a dynamic Business finds its limits in traditional on-premises architecture
- Renewal of HW requires significant investment and planning due to long lead times
- Limited skills and capacity to perform value add activities



Cloud strategy

- Define Cloud strategy
- Operationalization and execution
- Experience, key success factors and challenges



KNORR-BREMSE

Knorr-Bremse is ideally positioned to shape the trends of the future



Urbanization



Sustainability



Digitalization



Mobility

Industry trends: addressing industry trends with superior technological solutions



Transport Capacity
Availability
Eco Friendliness
Life Cycle Management



Traffic Safety
Emission Reduction & E-Mobility
Automated Driving
Connectivity

Financial highlights FY22: Sound performance in a difficult environment

ORDER INTAKE **€ 8.11bn**
(11% yoy)

ORDER BOOK¹ **€ 6.91bn**
(24% yoy)



REVENUES OF **€ 7.15bn**
(7% yoy)

11.1% OP. EBIT MARGIN
(PY: 13.5%)

 **€ 3.40bn**
(3% yoy)

 **€ 3.75bn**
(11% yoy)

 op. **14.9%**
(PY: 17.9%)

 op. **9.0%**
(PY: 10.7%)



€ 219m FREE CASHFLOW
(PY: € 600m) **43%** Cash Conversion Rate

Knorr-Bremse locations worldwide



* FTE at 31.12.2022

Starting point: Why simple if complexity is our DNA?

- **17 data centers** across the globe (total of 1,700 servers)
- Main data centers in **Munich managed by central IT**
- Local data centers **managed by local IT**
- Urge to **renew hardware** in multiple locations & exit data centers
- Urge to establish **solid security & governance measures** across entire landscape (harmonization of security)
- Urge to **automatically provision** resources with governance-as-code



Operationalization of KB's Cloud Strategy

Knorr-Bremse IT & external solution partner developed cloud migration program

Analyzed the
**on-premise
infrastructure**



Analyzed the
existing **Cloud
usage by BU**



Defined **End-
to-End Cloud
Strategy**



**Migrated &
Modernized**
Workloads to
the Cloud



Building Blocks of Cloud Strategy

As-Is Infrastructure Analysis

Infrastructure TCO
Microsoft Azure Contract

Gap Analysis of
Cloud Target Architecture

Gap Closing Report

Business Units Requirements
for Cloud Strategy Definition

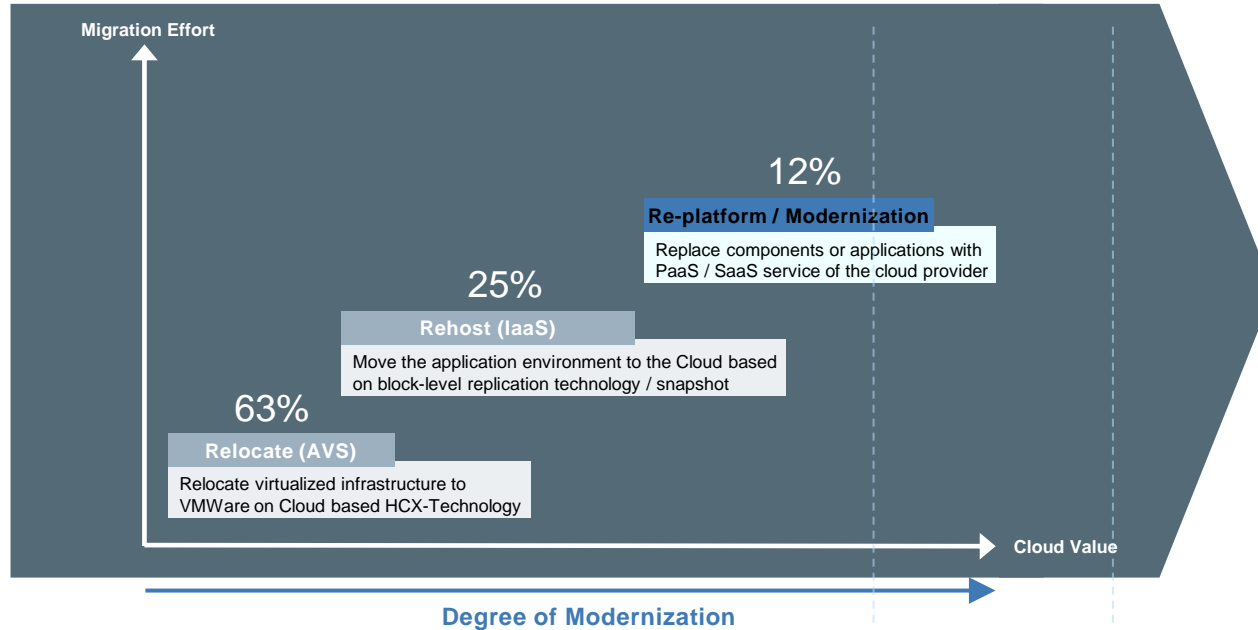
Multi-Cloud
Requirements Report

Cloud Operations Assessment

Cloud Ops Report

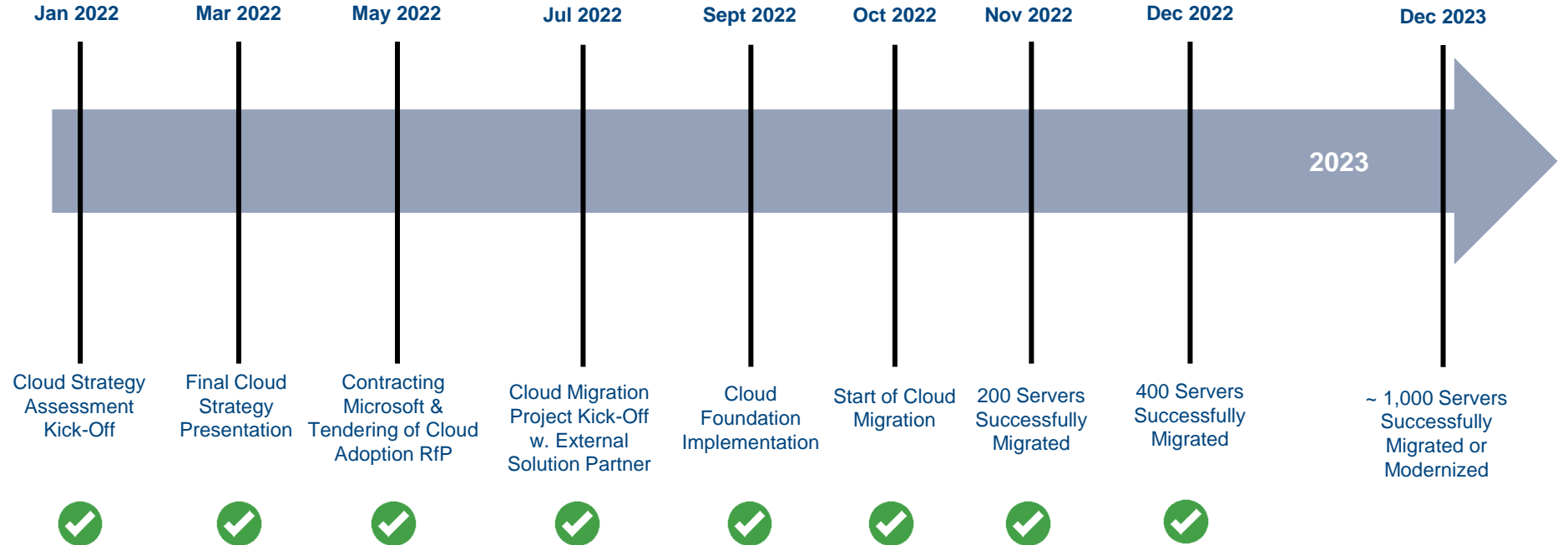
**Business Case
Calculation**

Analysis for Migration & Modernization



- Cloud Strategy recommended to move majority servers through a **relocation & rehost approach**
- Relocation & rehost was recommended based on:
 - **Migration cost**
 - **Future cloud cost compared to on-premise cost**
 - **Maintenance costs**
 - **Upskilling effort of employees**
- Re-platforming of applications was done further to **fully benefit from cloud native services**

2 years from strategy to finalization of program



Success Factors to Pave the Way for Cloud Migration

1

Choose the Right Partner | Agile Mindset With ITSM Knowledge

2

Invest in Solid Cloud Architecture & Governance

3

Track Cloud Costs While Migrating

4

Get Team Behind Cloud and Move Fast

5

Implement Cloud Center of Excellence for Cloud Operations

6

Continuous C-Level Backing for Cloud Migration

Challenges Along the Way for Cloud Migration

1

Organizational Change Management & Upskilling

2

Getting Used to Making Faster Decisions

3

Matching Expectations of Digital & Data Teams

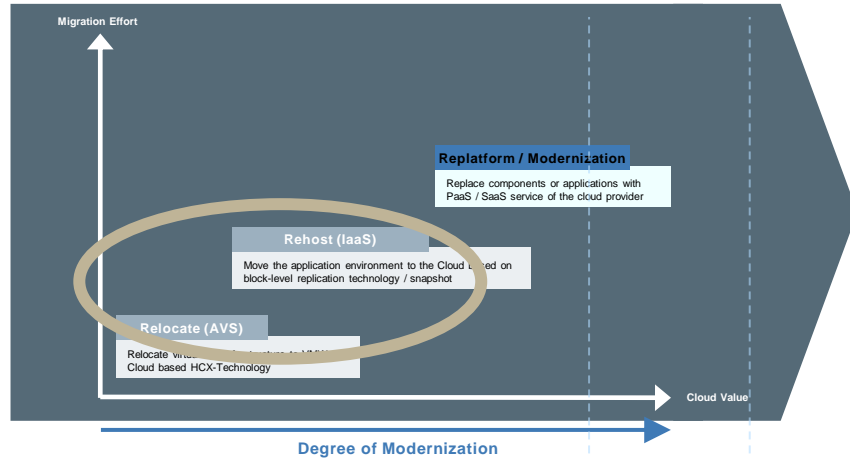
4

Focus on Target KPIs (Migration & Modernization)

5

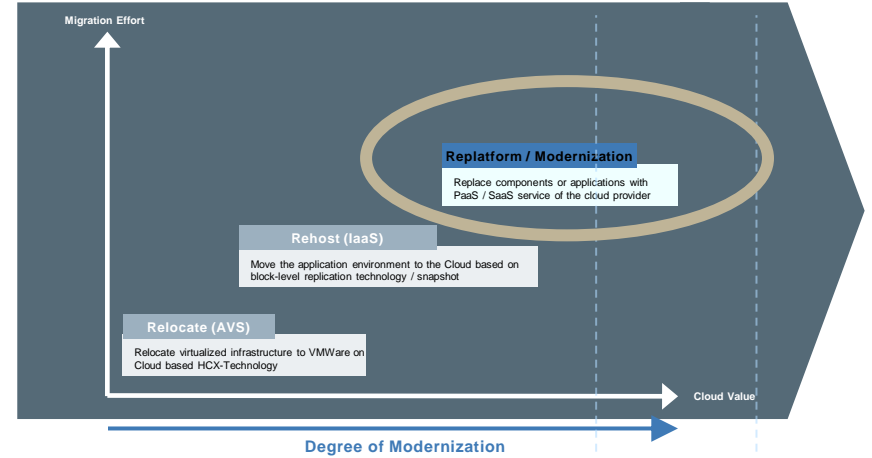
Understand the financial implications

Looking Forward 2024 – 2025 | Modernization of Entire Ecosystem



2022 – 2023

Focus Cloud Migration



2024 – 2025

Focus Cloud Modernization

Key Messages

Start with a thorough analysis

Understand the scope, no surprises

Select a matching partner

Experience, best practices and cultural fit

Be aware of the financial impact

Avoid cost explosion

“Chefsache”

Sell it to the business and backup your team

**Define your
strategy
and
execute it!**

Thank you!