Fujitsu Forum 2014
ICM Munich
19th – 20th November
Human Centric Innovation
The „New Data Center”
Optimize Your Investments

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VMware

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Fujitsu
Optimising your investment in the “New Data Center” – Business defined

“Triggers and Drivers”

Examination

Choices

Business outcome

Infrastructure, Facilities

Technology

Software, service level agreements...

Solutions

Optimising your investment in the “New Data Center” – Business defined

“An tailored approach purely based on our customers business needs”
General computing & CIO challenges

- **Data explosion**: 100,000 new tweets, 284.500 content elements are shared, 2 Million searches are made, 48 hours of video uploaded.
- **Virtualization**: 4x by 2016.
- **Power and cooling challenges**: 71% of operating cost.
- **Lack of staff and skills**: Critical CIO priority in 2013.

- **Meet new challenges**
- **Expand Efficiencies**
- **Optimize OpEx**
- **Improve IT Management**
Major issues faced in IT projects

Reason number one
Substantially late

Second Most
Functionality issues

Third place
High cost variance

Still often
Poor quality

Problems are mainly caused by lack of experience, information and standardization
Deployment and Sourcing Strategies for the “New Data Center”

**Stage 0**
- **Consolidation**
  - Savings up to 10%
  - Hardware efficiency
  - Operations & Management
  - Capital cost
- **Hypervisor Technology**
  - Cost reduction
  - Lower power consumption
  - Lower maintenance
  - Freeing-up resources
  - Fast provisioning
  - Flexible distribution of resources
- **Virtualize & standardize next level data centers**
  - Distributed virtualisation
  - Advantages of Stage 1 plus:
    - Increased agility
    - Reduce time to market
    - Increase service quality
    - Flexible assignment of resources / pooling
    - Basis for orchestration
    - Costs are easier billable
    - Detecting of bottlenecks

**Stage 1**
- **Server-virtualization**
- **Consolidation**
  - Savings up to 40%
  - **Cloud Approach**
    - Upper level – data center
    - **Private Cloud**
      - Advantages of Stage 2 plus:
        - Self Service Portal
        - Utility computing:
          - Scalability
          - Virtualization
          - Automation
          - Usage-dependent billing
          - Standardized services
          - Flexibility & agility
          - Optimizing of
          - Capital cost
          - Operational cost

**Stage 2**
- **Overall virtualization**
- **Pool & share next level data centers**
  - Distributed virtualisation
  - Advantages of Stage 1 plus:
    - Increased agility
    - Reduce time to market
    - Increase service quality
    - Flexible assignment of resources / pooling
    - Basis for orchestration
    - Costs are easier billable
    - Detecting of bottlenecks

**Stage 3**
- **Automation & industrialization**
  - Fujitsu Cloud (hybrid/public Cloud)
  - Self Service Portal
  - Advanced flexibility
  - Predictable
  - Cost efficient
  - Resources on Demand
  - computational Power
  - Capacity
  - Bandwidth
  - Reliable
  - Secure
  - 7x24x365 SLA
  - "Bullet proven" technology

**Stage 4**
- **Resources on-demand**
The „New Data Center“
the Era of Software Defined Everything
The approach taken by the most agile & efficient data centers is SDDC

Google / Facebook / Amazon Data Centers

Custom Application
Software / Hardware Abstraction

Custom Platform
Software / Hardware Abstraction

Any x86

Any Storage

Any IP network
The Choice for “New IT” – SDDC or HDDC

**Software Defined Data Center (SDDC)**
- Any Application
- SDDC Platform (Data Center Virtualization)
- Any x86
- Any Storage
- Any IP network

**Google / Facebook / Amazon Data Centers**
- Custom Application (Software / Hardware Abstraction)
- Custom Platform (Software / Hardware Abstraction)
- Any x86
- Any Storage
- Any IP network

**Hardware Defined Data Center (HDDC)**
- Any Application
- HDDC Platform
- Integrated x86
- Integrated Storage
- Vendor Specific Network

Vertical Integration
Benefits of a Software-Defined Architecture

IT Outcomes & Impact Delivered by Software-Defined Data Center

- **Operational Expense (OpEx)** Reduction: Streamlined and Automated Data Center Operations
- **Improved Security to Effort Ratio**: Security Controls Native to Infrastructure
- **Higher Availability**: High Availability and Resilient Infrastructure
- **Improved Service Delivery Time**: App and Infrastructure Delivery Automation
- **CapEx Reduction**: Data Center Virtualization and Standardization
- **Operational Expense (OpEx)** Reduction: CapEx and OpEx efficiency

Software-Defined Data Center enables new levels of CapEx and OpEx efficiency

**Control**

**Agility**

**Efficiency**

Software-Defined Data Center

CapEx Reduction

OpEx Reduction

Improved Security to Effort Ratio

Higher Availability

Improved Service Delivery Time

App and Infrastructure Delivery Automation
SDDC Increases Velocity of IT Service Delivery

More Efficient IT Operations...

<table>
<thead>
<tr>
<th>OpEx Savings</th>
<th>CapEx Savings</th>
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<tbody>
<tr>
<td>70%+</td>
<td>49%</td>
</tr>
<tr>
<td>Reduction in HW Support costs</td>
<td>Savings in CapEx</td>
</tr>
<tr>
<td>50%+</td>
<td></td>
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<tr>
<td>Reduction in IT Admin hours</td>
<td></td>
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<tr>
<td>~50%</td>
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<tr>
<td>Reduction in Power &amp; Cooling</td>
<td></td>
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<tr>
<td>30%+</td>
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<tr>
<td>Reduction in DC Floor Space</td>
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</table>

Faster provisioning of Applications
(compute, networking, and storage)

Faster time to market

OpEx Savings: 70%+ Reduction in HW Support costs, 50%+ Reduction in IT Admin hours, ~50% Reduction in Power & Cooling, 30%+ Reduction in DC Floor Space.

CapEx Savings: 49% Savings in CapEx.

...shift from IT maintenance to transformation

Sources: VMW estimates for average cost and savings to operate a 2,500 VM environment. Taneja Group - Technology Brief, August 2014. - Study commissioned by VMware.
SDDC Product Updates

Management

Compute

Network

Storage
VMware vCloud Suite 5.8

vSphere-based private cloud, components engineered to work together

- **Improved business continuity and disaster recovery**
  - Self-service, policy-based provisioning of DR tiers
  - Increased scalability of protection and recovery capabilities

- **Enhanced next-generation applications**
  - Big Data Extensions support Hadoop 2

- **Improved interoperability with NSX**
  - Customizable provisioning of NSX firewall and routing services

- **New proactive support**
  - Support Assistant identifies issues before problems occur

Enhanced next-generation applications

Improved interoperability with NSX

New proactive support
SDDC Product Updates

Management

Compute

Network

Storage
vRealize Suite – Comprehensive Capabilities, Delivered On-prem and As a Service

Products
- App Director
- Hyperic
- Configuration Manager
- Operations Manager
- ITBM
- Digital Fuel
- Orchestrator
- Dynamic Ops
- Capacity IQ

Suites
- Automation
- Operations
- Business

Platform
- Automation
- Operations
- Business
Introducing – VMware vRealize™ Suite

Cloud Management Platform Purpose Built for Hybrid Cloud

Applications

Modern

Traditional

Infrastructure

Hybrid

Heterogeneous

VMware vRealize Suite

Automation

Operations

Business

Cloud

Virtual

Physical

Mobile

Social

Big Data

Web-Scale

Cloud Management Platform Purpose Built for Hybrid Cloud

Hybrid

Heterogeneous

VMware vRealize Suite

Automation

Operations

Business

Mobile

Social

Big Data

Web-Scale

Cloud

Virtual

Physical

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SDDC Product Updates

Management

Compute

Network

Storage
Enabling New Storage Tiers With Common Control Plane

- **Virtual Volumes (Beta)**
- **Virtual SAN**
- **vCloud Air**

**Storage Policy Based Mgmt.**

**Virtual Datastore**

**Virtual SAN Shared Datastore**

**Cloud Storage**
NSX: network abstraction, pooling, automation for SDDC

- New operating model for the network
- Reproduces L2/3 networking, L4-7 services
- Supports any existing network, app, hypervisor, cloud management platform
- Provides scale out/distributed switching, routing, firewalls and load balancing
- Enables dynamic service insertion
VMware NSX – Use Cases

Self-service IT
- Dev X
- Test X
- Dev A
- Acquisition A

Examples
- DevOps Cloud
- On-boarding M&A

Key Capabilities
- Application specific networking
- Flexible IP Address Mgmt
- Simplified consumption

Micro-segmentation

Examples
- Multi-tier app microsegmentation
- Client multi-tenency

Key Capabilities
- Isolation and segmentation of network traffic
- Unit-level trust, granular threat & fault containment
- Centralized policy management, distributed deployment

Data Center Automation

Examples
- Micro-segmentation of App
- Simplifying Compute Silos
- DMZ Deployments

Key Capabilities
- Programmatic Consumption
- Full featured stack
- Visibility and ops

Public Clouds

Examples
- XaaS Clouds
- Vertical Clouds

Key Capabilities
- Multi-tenant Deployment
- Programmatic L2, L3, Security
- Overlapping IP Addressing
- Any Hypervisor, Any CMP
VMware Integrated OpenStack

Now in Beta

VMware
One Platform for Any App

Virtual SAN / vVol

NSX

vSphere

Containers

vRealize Suite

Software-Defined Data Center
One Destination, Three Approaches

Software-Defined Data Center

“Build Your Own”
- Hardware components (e.g. compute, storage, networking) procured separately

Converged Infrastructure
- Traditional data center components (e.g. shared storage hardware, servers, switches) integrated and sold in a single chassis

Hyper-Converged Infrastructure
- Integration of hardware (compute, storage and networking) with software that provides a single point of entry for SDDC lifecycle management
Introducing the VMware EVO Family

- Simplify How You Buy, Deploy and Operate Your SDDC

- EVO software with vSphere and Virtual SAN technology is the key enabler
- Preconfigured, pre-integrated SDDC stack offering
- Simple, streamlined deployment and ongoing SDDC lifecycle management
EVO:RAIL – Faster Time-to-Value

100 Server VMs
250 Desktop VMs

Deploys in
Under 15 Minutes* 

Non-Disruptive
Upgrades

Source: VMware Internal testing, July 2014
Data Center Scale
Zero to App in Less Than Two Hours*
Lifecycle Management

*Source: VMware Internal testing, July 2014
The next level of hyperconverged infrastructures

PRIMEFLEX for VMware EVO:RAIL & Preview on EVO:RACK
Welcome to the new edge of converged infrastructures

- Trusted foundation – hyper-converged IT infrastructure based on proven technology
- Infrastructure at the speed of business
- Easy to obtain & single point of contact
- Ready-to-work in minutes
- Simplified design with predictable sizing & scaling

Benefits of FUJITSU Integrated System PRIMEFLEX for VMware EVO:RAIL
Linear scalability and high performance
Predictable.

- Up to 16 Nodes
- Up to 32x 10 Gbit/s Ethernet Connectivity
- Up to 58 TB of Storage (total)
- Up to 3.1 TB Memory

~100 VMs
~250 Desktops

~200 VMs
~750 Desktops

~300 VMs
~750 Desktops

~400 VMs
~1,000 Desktops
Building SDDC Through Pre-Qualified Configurations

Key Features

- Pre-qualified Data Center-Scale Hyper-Converged Cloud Infrastructure
- Simplified SDDC deployment, configuration, and provisioning
- SDDC lifecycle – non-disruptive patching/upgrading
- SDDC-wide capacity planning
- Integrated management of logical and physical resources
- Configuration and provisioning of end-to-end network infrastructure
- SDDC up and running in under 2 hours
- Primary use cases:
Global Leadership in Performance: Virtualization & Cloudpower
Two more examples why FUJITSU x86 Servers are the best foundation for VMware EVO:RAIL

PRIMERGY servers hold 5 out of 10 top positions!

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<tr>
<th>Hardware Vendor</th>
<th>System</th>
<th>Result</th>
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Cool-safe® Advanced Thermal Design

- Benefit
  - Up to 27% saving on energy costs for cooling
  - Reduced infrastructure costs for new data centers
  - System availability guarantee - even under extreme conditions
Major steps towards increasing Operational Efficiency

- Harmonization
- Consolidation
- Virtualization
- Automation
- Self-Service
In Summary

Where are you today?

- Consolidation
  - Savings up to 10%
  - Hypervisor Technology
  - Cost reduction
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      - Utility computing:
        - Scalability
        - Virtualization
        - Automation
        - Usage-dependent billing
        - Standardized services
        - Flexibility & agility
        - Improved security
        - Optimization of
        - Capital cost
        - Operational cost

- Flexible
  - on-demand sourcing
  - Fujitsu Cloud (hybrid/public Cloud)
  - Self Service Portal
  - Advanced flexibility
  - Predictable
  - Cost efficient
  - Resources on Demand
  - Computational Power
  - Capacity
  - Bandwidth
  - Reliable
  - Secure
  - 7x24x365 SLA
  - “Bullet proven” technology

- Stage 0
  - Server virtualization

- Stage 1
  - Virtualize & standardize
  - Savings up to 40%
  - Hypervisor Technology

- Stage 2
  - Overall virtualization

- Stage 3
  - Automation & industrialization

- Stage 4
  - Resources on-demand

Where are you today?
Thank you for listening!
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uwe.neumeier@ts.fujitsu.com