Fujitsu World Tour 2015

Human Centric Innovation
Power, Simplicity and Security for SAP HANA – from Infrastructure Delivery to Cloud Services

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SAP & PRIMEQUEST Business Developer Manager
IT demands of businesses running SAP

- In-memory computing capable to Deliver Real-Time results
- High performance & RAS Features
- Mission-critical uptime feature-set
- Extensive workloads determining scale-up scenarios
- Real-Time Cloud Infrastructure SAP HANA Ready
- Sophisticated IoT Real-Time analysis including Socials "meters" Cloud Powered
Fujitsu – Italy SAP Team & Achievements

- SAP Business Unit overview
  - 1 Dedicated Business Development Manager
  - 4 Dedicated Presales (2 Milan, 2 Rome)
  - 3 Dedicated Professional Services for SAP HANA Implementation
  - 2 Dedicated Post Sales for SAP HANA Support
  - 1 Senior SuSe system admin for cluster implementation
  - 1 VAR SAP for SAP HANA “Power” and SAP B1 on HANA HA implementation

- Fujitsu Italy SAP HANA Achievements:
  - 15 SAP HANA “Power” deals closed
  - 55 SAP HANA “Power” nodes Delivered for a total of 13.5TB SAP HANA RAM
  - 110 SAP B1 on HANA nodes Installed for a total of 8TB of SAP B1 HANA RAM.
  - An E2E SAP and SAP HANA Lab in SAP Italy
  - 4 SAP HANA “Power” assigned to VAR SAP & System Integrator
Major SAP HANA Main Use Cases

SAP HANA Side Car Scenario

SAP NetWeaver BW on SAP HANA

SAP Business Suite powered by SAP HANA

SAP HANA on VMware

Your platform for next-generation applications and analytics
SAP HANA Detailed Use Cases

Accelerators

HANA Platform (Datamart)

HANA Apps

HANA Content (Reporting & Analytics)

HANA Accelerators

BW on HANA

Cloud on HANA

Business One Analytics on HANA

Business One on HANA

Business Suite on HANA

HANA New Apps

Analytics

Primary DB

New Apps

Your platform for next-generation applications and analytics
SAP Business One - HANA Roadmap / Deployment options

**Side-by-side**
- **Analytics powered by SAP HANA**
  - Mobile
  - Windows B1 Clients
  - Linux B1 Server Tools
  - MSSQL
  - HANA DB
- HANA runs in parallel with B1 Server (MSSQL)
- Helps users explore and investigate real-time information before making decisions
- Includes pre-designed reports, 7 dashboards, and 8 OLAP cubes with logical views
- End user creates reports without IT department

**Integrated**
- **OneBox Solution**
  - Mobile
  - Windows B1 Clients
  - Linux B1 Server Tools
  - HANA DB
- Value through B1 on HANA DB – Platform consolidation, lower TCO
- Analytical reports & transactions, enterprise search in "real" real-time
- 1st SE ERP offering OLTP & OLAP in One Box and real-time OLAP
- Targets B1 customers (25+ users) with high data processing volume, such as Retail / manufacturing

- **OneBox with Killer Apps**
  - Mobile
  - Windows B1 Clients
  - Linux B1 Server Tools
  - HANA DB
- Value through native HANA innovation
- Real-time planning, forecast & simulation
- Data mining and BI

**RTC in Q1 2012, planned GA late 2012**

**RTC by Q4 2012**

**Later in release family 9**
PRIMERGY TX 2560 M1 / RX 2560 M1 / RX2540 M1
- 2 Intel Xeon E5-2670v3
- Up to 512 GB DDR4 2133 MHz ECC in performance mode
- Up to 6 x Hot Plug SAS 6G 300GB 10K
- Blue Ray Reader / Writer Slim Line
- SAS 3.0 12Gb/Sec. RAID controller 1GB with RAID Battery Backup Unit
- Advanced Remote Management (using dedicated LAN)
- Redundant fans and power supply

Staging Options
- No Staging Standard Option
- OS Staging Option
- Optional OS and SAP B1 Installation Option
- Cluster Mode Installation Option

www.primergy.com

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HW configurations
- 6 Tower Models (64GB, 96GB, 128GB, 256GB, 384GB, 512GB);
- 12 Rack Models (64GB, 96GB, 128GB, 256GB, 384GB 512GB).

SW configurations
- Naked (only HW delivered);
- Only SuSe Enterprise (no Installation);
- Suse Enterprise Installed;
- SuSe Enterprise and SAP B1 installed;
- SuSe Enterprise HA Installed (Cluster Mode);
- SuSe Enterprise HA and SAP B1 installed (Cluster Mode);

In total, our customers can choose the better configuration between 108 variants... plus warranty extension...
Fujitsu SAP B1 – High Availability – The Concept

SAP B1 High Availability provided by Fujitsu
- Two SAP B1 HANA Nodes in cluster configuration
- Cluster is managed by SuSe SAP HANA System Replication on SLES4SAP Applications
- SAP HANA Synchronization via SAP HAAN System Replication

Backup and Restore

Optional Storage
Fujitsu SAP B1 - 1st SAP B1 Cluster RUNNING in Italy
SAP B1 Forum 9 July Monza

SAP B1 High Availability powered by Fujitsu SuSe & Run Time
- 1st SAP B1 cluster powered by HANA running in Italy
- Powered by Run Time Solutions and based on Fujitsu PRIMERGY
- Powered by SuSe SLES Enterprise with HA Features
SAP HANA Infrastructure Offering Overview

Single Node (scale up)
- Fujitsu PRIMEFLEX for SAP HANA
- Fujitsu Server PRIMERGY/PRIMEQUEST certified for SAP HANA

Fujitsu ETERNUS JX40

Multi Node (scale out)
- Fujitsu PRIMEFLEX for SAP HANA
- Fujitsu Server PRIMERGY/PRIMEQUEST certified for SAP HANA

Fujitsu PRIMEFLEX for SAP Landscapes

An all-embracing operational concept

SAP HANA Tailored Datacenter Integration for Enterprise Storage
- Fujitsu ETERNUS
- NetApp
- EMC
- ...

TDI Storage

An integrated system powered by the Fujitsu FlexFrame Orchestrator software

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Fujitsu PRIMEFLEX for SAP HANA (Scale out - reference architecture)

**Network**
- Cisco Ethernet

**Server**
- PRIMEGY RX 4770
- PRIMEQUEST 2800B/E/L
- Failover

**Storage**
- NetApp FAS Storage Systems

**Architecture concept:**
- Easy to extend – scales without logical limits
- Built-in high availability (n+1 failover)
- Ideal for mission-critical environments

**Further Options:**
- Fujitsu ETERNUS DXx00 S3, SAN
- Any other Enterprise Storage (TDI)*

* TDI approach to integrate any storage
SAP certification for SAP HANA TDI required!
Availability - SAP-certified Disaster Tolerant Solution

- Safeguards business continuity
  - Zero data loss with NetApp MetroCluster up to 200KM distance
  - Certified storage replication for long range DR (>200KM)
  - Guided recovery process for fast return to normal operation

- Expedient investment
  - Non-productive use of fail-over system during normal operations

Fujitsu is an expert for all kinds of business- and mission critical set-ups

For SAP certification see SAP Note #1755396
<table>
<thead>
<tr>
<th>Big-data and in-memory computing</th>
<th>Advanced RAS-features</th>
<th>Innovations for critical applications</th>
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<tbody>
<tr>
<td>Faster to business results thanks to Intel® Xeon® E7-8800 v3 processors and DDR4 memory – the right performance for database applications, telecommunication infrastructures and real-time analytics</td>
<td>Resilience at its best with highest redundancy and failure detection as well as failure correction taken to a new level in an x86-industry standard system</td>
<td>The Extended Partitioning* function allows you to allocate resources within one system as required and to utilize resources optimally while maintaining the necessary fault tolerance. Dynamic Reconfiguration* allows to reconfigure the system while it is running. Stay flexible and react to changes in workload without downtimes</td>
</tr>
</tbody>
</table>
PRIMEQUEST 2x00E - Dynamic Reconfiguration

On the fly addition, replacement or removal of system resources such as system board and IO-units

**Dynamic Reconfiguration**
- Replace failed hardware unit without stopping applications
- Maintenance of system board on the fly

**Benefits**
- No downtime if components failed
- Automatic recovery
- System maintenance without downtime

1. Hardware error occurs
2. Dynamically add spared SB to partition
3. Dynamically remove broken unit from partition
4. Take away defective unit

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Resilient RAS-features: Dynamic Reconfiguration

Performance saturated due to resource shortage

Performance improved due to sufficient resource
Efficiency and flexibility feature: Extended Partitioning

Extended Partitioning

Partition #1
- App
- OS
- CPU

Partition #2
- App
- OS
- CPU

Partition #3
- App
- OS
- CPU

Partition #4
- App
- OS
- CPU

Partition #4.1
- App
- OS

Partition #4.2
- App
- OS

EP - cores Switch off

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Extended Socket Interconnect

- **Extended Socket**
  - Two EP in one PPAR that will have local memory and shared Memory connected via QPI, not via external network like 10GbE or Infiniband (Can use in Multi Tier Architectures e.g. DB and WEB Services)

- **QPI based 2800E2**
  - QPI based high speed communication with extended partitioning
  - Using shared memory
  - No protection layer change needed

- **Alternative interface to Infiniband /10G LAN**
  - QPI based 160GT/s min latency

- **Main application**
  - Three-Tier (Web/App/DB) system into one box
PRIMEFLEX FFO - SAP, Scalable, Reliable & Cloud

Fujitsu Key Technologies & Features
- Shared OS
- SAP LVM
- SW & HW Virtualization
- HA of IT and SAP Services
- Automation of DC tasks
- Multi Tenancy
- Factory Staging
- Lifecycle Management

Managed by FlexFrame Orchestrator

Oracle/DB2/SAP MaxDB/SAP Sybase ASE & IQ
SAP LVM
OS
Server
Network
Storage

SAP HANA

Key Values
- Reduce Costs (Capex & Opex)
- Increase Agility
- Improve Quality of Service
- Reduce Complexity
- Private Cloud Readiness
- Supports 3rd party hardware

Shared OS – Application High Availability – Lifecycle Management – Multi Tenancy – lower TCO – increase SLA
Lufthansa Systems relies on FlexFrame for business critical applications

- More than 1,000,000 SAPS on FlexFrame
- 55 TB data, 15+ aviation customers in isolated pools
- More than 100 SAP Systems
- 100 % SAP systems on FlexFrame

Recently: SAP System “Lufthansa Technik” Migration from AIX to FlexFrame
- One of the most mission critical systems for Lufthansa
- Focus on performance and availability
Rehau – Simplified operations and impressive cost savings with FlexFrame Orchestrator

Rehau reduces costs per SAPS by 92%
Working with... World class customers

Retail
- Whitbread
- KFC
- VBH
- Auchan
- NORDCONAD
- Specavers
- CDON.COM
- Mitchells & Butlers
- Netto
- Ironmonger's

Financial Services
- International Personal Finance
- EOS
- WWK
- CaixaBank
- Helsana
- POST Office
- Swedbank

Transport and Logistics
- Cathay Pacific
- Lufthansa
- SNCF
- TNT
- Air France KLM
- Schiphol Group
- Qantas
- SITA

Utilities
- Airtricity
- OMV
- NVP
- PRIMAGAS
- Total
- Centrica
- EnBW

Public Sector
- HM Revenue & Customs
- itella
- WKO
- Generatari de Catalunya
- ROMA CAPITALE
- POLIZEI

Manufacturing
- Johnsmillville
- Haworth
- Legrand
- IAMY
- Husqvarna
- Siemens
- Daimler
- Audi
- Metso
- Rockwool
- Nectech
- Vaskdomordden

Communications
- Ericsson
- Link
- NDR
- PT
- Telefonica
- China Mobile
- China Telecom

Health
- Marchfield Clinic
- Pirkanmaa Hospital District
- Meander
- Alette
- Asklepios
Fujitsu offre una soluzione basata sulla propria Private Hosted Cloud, piattaforma IaaS situata in Italia presso un datacenter con caratteristiche Tier 3 e certificato ISO 27001, ISO 9001, ISO 14001, OHSAS 18001.


- Un elevato livello di sicurezza è garantito da un’architettura fisica basata su tecnologia Cisco ASA e su moduli di sicurezza VMware.

- La piattaforma Cloud italiana di Fujitsu è condotta mediante Fujitsu Service model certificato ISO 20000.
L'architettura consigliata dalle Best Practise di SAP:

- 1 Appliance PRD;
- 1 Appliance Test & Dev & DR PRD.

La soluzione si attiene all’architettura certificata da SAP (Shadow Copy)

I seguenti requisiti devono essere soddisfatti per realizzare questa opzione:

- I sistemi non in produzione devono essere dotati di propri dischi
- I sistemi non in produzione devono essere spenti nel momento in cui vengono attivati quelli di produzione
- Mantenere della memoria libera sui sistemi secondari per mantenere una copia (shadow) delle istanze del database

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**SAP & SAP HANA Cloud Reference Architecture**

**Fujitsu Private Hosted Cloud**

- **ERP PRD 256GB**
  - PRIMERGY RX4770

- **ERP Test & Dev DR 256GB**
  - PRIMERGY RX4770

- **SAP HANA Shadow Copy via System Replication**

- **6 VM**
  - Virtual Application Servers

- **SAP HANA Appliance**

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The Era of Human Centric ICT - Cloud Services -

- **Vendor** → **IT Dept.** → **Human Centric Business Strategy**
- **Knowledge Creation, Activity Support**
- **Business Process Transformation**
- **Network-centric**
- **Computer-centric**
- **Mainframe**
- **Client-Server Internet**
- **Network**
- **Cloud**
- **Mobile**
- **Big Data**

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ICT penetrates social infrastructure and supports people’s activities with knowledge obtained from analyzing information from sensors.

- ICT addresses the social issues of local people, government, and businesses to support sustainable community development.

Fujitsu’s Vision - Intelligent Social Infrastructure
"Akisai"
Food and Agricultural Cloud

ICT-based production support and management service for enabling industrialized agriculture
Intelligent Social Infrastructure

Smart Community  Energy via Cloud Services in Aizu Wakamatsu region

Launch “The Aizu Area Smart Community Promotion Project” funded by METI with local governments, public organizations and companies in the area.

- Develop the Energy Control Center that will enable the utilization of renewable energy

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New Value from Information
Smart City managed by Cloud and BIG Data as Service

Based on location data, collect and analyze an enormous volume and a wide variety of data, and visualize them in real-time.

Value creation

- Location data (coordinate)
- Space and time database
- Non-structured data
- Real-time information (event, SNS)
- External Information (site, weather etc.)
- Massive probe information (Automotive)

Navigation
- Area information service
- Traffic information
- Vehicle management

Analyze, Estimate and Optimize

Extract correlation of data

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Thank you for listening
shaping tomorrow with you