# SAP på POWER

## IBM Technical SAP Forum

# SAP på IBM POWER

Esben Viskum
IT-chef
AarhusKarlshamn

# AarhusKarlshamn ?

- **Aarhus United**

    - *1871 Aarhus Palmekærnefabrik is established.*

    - *1892 Aarhus Oliefabrik*

    - *1910 An international network is established.*

    - *1940 Operations consolidated and at times account for 10 percent of Denmark's exports.*

    - *1982-1991 Globalisation continues, and the subsidiaries UK, USA and Mexico are established.*

    - *2003 All operations are gathered under the collective name Aarhus United*

- **Karlshamns**

    - *1918 The production of soybean meal for animal feed comes on stream.*

    - *1932 Kooperativa Förbundet acquires the factory.*

    - *1997 The Karlshamns share is listed on the Stockholm Stock Exchange.*

    - *2001 Melker Schörling acquires the shares held by Kooperativa Förbundet, thereby becoming Karlshamns' largest shareholder.*

    - *2004 Focus on high value-added speciality fats.*

2005 Merger

Turnover: 9 mia DKR.
2500 Employees

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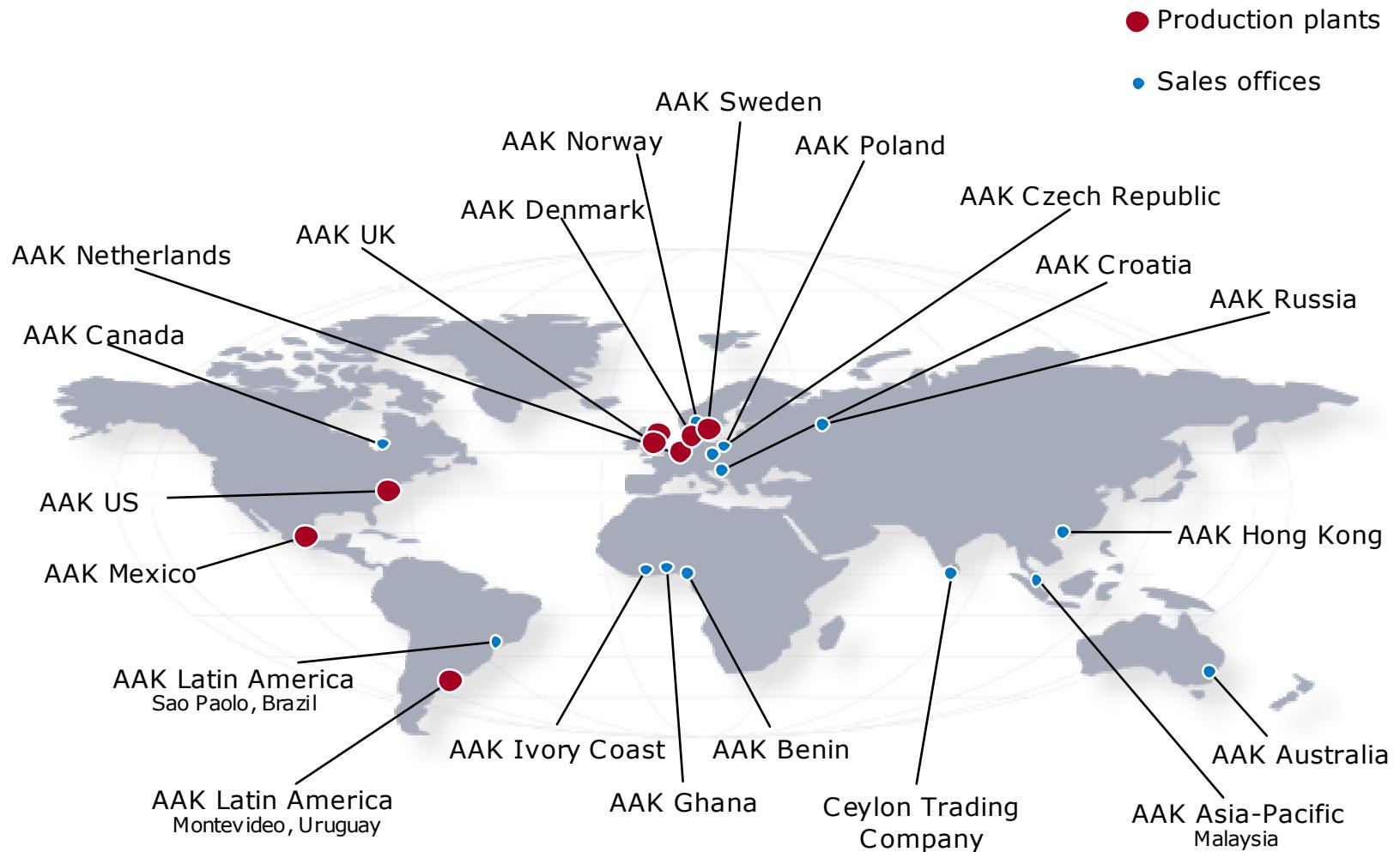
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# AAK in the World



● Production plants

● Sales offices

AAK Sweden
AAK Norway
AAK Poland
AAK Denmark
AAK Czech Republic
AAK UK
AAK Croatia
AAK Netherlands
AAK Russia
AAK Canada
AAK US
AAK Hong Kong
AAK Mexico
AAK Latin America
Sao Paolo, Brazil
AAK Ivory Coast
AAK Benin
AAK Australia
AAK Latin America
Montevideo, Uruguay
AAK Ghana
Ceylon Trading
Company
AAK Asia-Pacific
Malaysia

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# AAK Værdikæde

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# Applications

| Chocolate & Confectionery Fats | Food Ingredients | Technical Products & Feed | Other Business |
|---|---|---|---|

- Chocolate
- Fillings

- Dairy, Bakery
- Food Service

- Lubricants
- Feed Materials

- Skin care
- Hair care

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# AAK - Chocolate & Confectionery Fats
*Vækstmål*
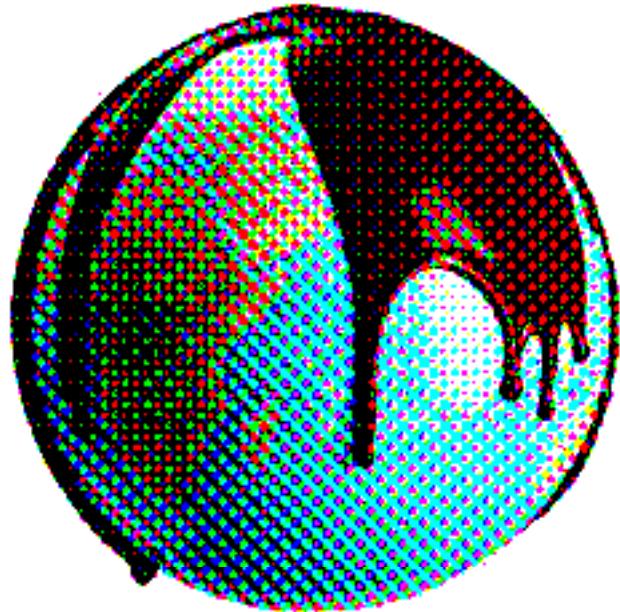


- Den største leverandør af vegetabilske olier til chokolade industri i verden.

- Nr 1 eller 2 på alle markeder i verden.

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# Udfordringer…

- Business-2-Business (branding barrier).

- Lav-margin industri.

- Fabrikker i løntunge lande (fx DK, SE, NL).

$$\Downarrow$$

- Effektiviser og automatiser !!!

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# AAK – Strategy
*Balanced Score Card*

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# IT Strategy
*key focus areas*

- Vision:
  *"We are using advanced and up-to-date Information Technology to automate and support all processes at AU"*
  (we seek for automating every manuel operation we can find)

- Our strategy (tactics):

  - *Well defined development model*

  - *Decision model*

  - *Few, but very strong and <u>up-to-date</u> platforms – the best of the best:*

    - SAP, Lotus Notes/Domino

  - *Consolidate the installation as much as possible*

    - Data, Hardware, Software, Installations

  - *Installation based on open systems and <u>standardization</u>.*

  - *In-house IT competences*

    ⇓

  - *Agile, flexible set up. In depth knowledge about the platforms*

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# A journey through Aarhus United IT…

|  | 2000 | 2004 | today |
|---|---|---|---|

**Proces control**

| Many systems… No standards… | SAP integration | Standards | Migration to one DCS |

**ERP**

| Mainframe spaghetti | SAP R/3 4.6C — SAP 3 / SAP 2 / SAP 1 — 1½ | 5.0 / Reporting - BW / SAP2Excellence | Supply chain management / Web-enabling / SAP2Excellence |

**Web/e-biz**

| Static web sites | E-biz (Customer Centre) | | Cust&supplier SS & int Electronic documents |

**Communication**

| Lotus Notes DK | Intranet | Global Intranet/Notes | Web-enabling/portal SAP int.  Video/audio |

**Client**

| Unmanaged PCs | "Some" standards and automation of installation etc | Standardisation & full auto. (MS-AD) | PCs managed globally |

**Infrastructure**

| Mainframe T/R network | Many PC servers Ethernet | Global network | Consolidation | Thin client/Citrix |

**Strategy**

| ??? | BSC    "service leader" | "cost leader" | "cost leader" |

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# SAP implementation

- Implementation started in 1999 on Compaq Alphas
  - *Good technical platform*
  - *Died somewhere in the Digital-Compaq-HP merger…*
- In 2003 a replacement was needed
  - *SAP installation got bigger all the time.*
    - More users
    - More functionality
  - *TCO model for selecting new platform was developed*
  - *Platforms selected and tested.*
  - *Evaluation criteria scored*
  - *IBM POWER showed the best TCO and was selected for implementation.*

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# Selecting central SAP servers

- SUN
  - *4 x 4-way Ultrasparc maskiner med Solaris operativsystemer*
- Siemens
  - *4x 8(4)-way SPARC64 maskiner med Solaris operativsys.*
  - *11 Intel/Windows maskiner*
- HP
  - *2x 8-way HP PA-RISC maskiner med HP-UX*
- IBM
  - *2x 8-way IBM p650 maskiner med AIX op-sys*
  - *11 Intel/Windows maskiner (x440)*

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# TCO analysen

| Ny central IT platform | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| Leverandør | IBM | | | | | | | | |
| Løsningsnavn | P650 | | | | | | | | |
| AO performance index | 307 | (4 vejs løsning med 8 GB ram relativt til 4 vejs produktions ALFA med 8 GB ram) | | | | | | | |
| | | | | | | | | | |
| | Date | Qty | | | | | | | |
| Konfiguration | | | | TCO | | | x | | |
| P650 | 2002-12 | 2 | | | | | -50.000 | | |

Overlaid box:

| | | |
|---|---|---|
| BW driftsmulighed | 0 | 150000 i tillæg, hvis ej muligt) |
| Partionering | 0 | (150000 i tillæg hvis ingen hardwarepartionering) |
| TSM backup licenser | 50000 | (Ca. 50000 for alle systemer) |
| Resourcestyring | 0 | (150000 i tillæg for dårligste) |
| Videnstillæg (80% sandsynlighed) | 30000 | (150000 for skift om 3 år med 100% sandsynlighed) |
| Offentlige leverandør-support fora | 0 | (Bedst ingen tillæg) |
| 3. Parts community (25% af 100000) | 25000 | (Bedst ingen tillæg) |
| Kompetence tilgængelighed (OS) | 50000 | (250000 for AIX kontra Windows, 20% sandsynlighed for udfald) |
| Systemperformance regulering | | (Bedst ingen tillæg) |

Options:

| | Date | Qty |
|---|---|---|
| Power4 1,45 Ghz | 2004-01 | 4 |
| Power4 1,45 Ghz | 2005-01 | 4 |
| RAM (GB) | 2004-01 | 32 |
| RAM (GB) | 2005-01 | 32 |
| I/O expansion drawers (6 slots) | 2004-01 | 2 |
| I/O expansion drawers (6 slots) | 2005-01 | 2 |

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# SAP migration
*from Digital Alpha Tru64 to IBM POWER & AIX*

- Steps (IBM Redbook used as guide !):

  1. *LPAR partion planning*

  2. *Hardware set-up*

  3. *AIX installation*

  4. *Test migration – Production system*

     1. User tests on migrated system.

  5. *SAP migration – Development & Test systems*

  6. *SAP migration – Production system*

- Done 100% by internal IT resources

- 24 hours of planned down time

- All in all ~25 working days.

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# Server infrastructure



pSeries 650
8 way Power4+ 1.65GHz
48 GB RAM
50+ PCI-X slots

IBM 3584
225 slots
4x LTO1

xSeries 445
4 way Xeon
16 GB RAM

Brocade 3900
SAN switch
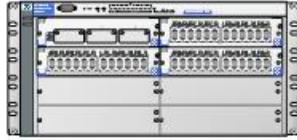
HP Procurve
Layer3 switch

pSeries 570
4 way POWER5
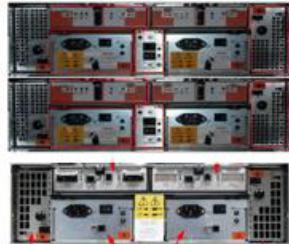
IBM DS4500
7 TB storage

Server room 1
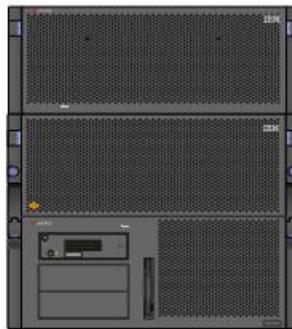
pSeries 650
8 way Power4+ 1.65GHz
48 GB RAM
50+ PCI-X slots

IBM 3583
72 slots
2x LTO3

xSeries 445
4 way Xeon
16 GB RAM

HP Procurve
Layer3 switch

Brocade 3900
SAN switch

pSeries 550Q
8 way POWER5

IBM DS4500
7 TB storage

Server room 2

Redundant Internet connection,
network, UPS Power system, and
Cooling system

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# POWER environment at AAK

- 4 physical servers (with a total of 32 CPUs, 152 GB RAM)

- 12 LPARs – running AIX5L 5.2 or 5.3

- Systems:

  - *20 SAP systems (R/3-ERP2004, BW, XI, MDM, EP)*

  - *24 Lotus Domino instances*

  - *1 TSM backup & document archive system*

- Failover/cluster setup on production systems (SAP & Domino)

- Advanced POWER virtualisation & VIOS used to consolidate on POWER5 servers.

- LVM + jfs2 used for disk storage.

- Workload Manager (WLM used for workload sharing)

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# WLM
*Workload Manager*

- Used to control distribution of resources inside a LPAR.

- Makes it possible to consolidate many systems in a single LPAR.

- Example of other use:

  - *Prevent faulty processes from exhausting system resources.*

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# LVM + jfs2
*Logical Volume Manager*

- All major UNIXs got a volume manager/file system architecture.

- AIX LVM + jfs2 is found to have following qualities:

    - *Makes it easy to design and construct failover environments*

    - *Easy to move data volumes and file systems between LPARs and/or physical servers*

    - *Very robust*

    - *Dynamic – changes can be made to online environments*

    - *Fast !*
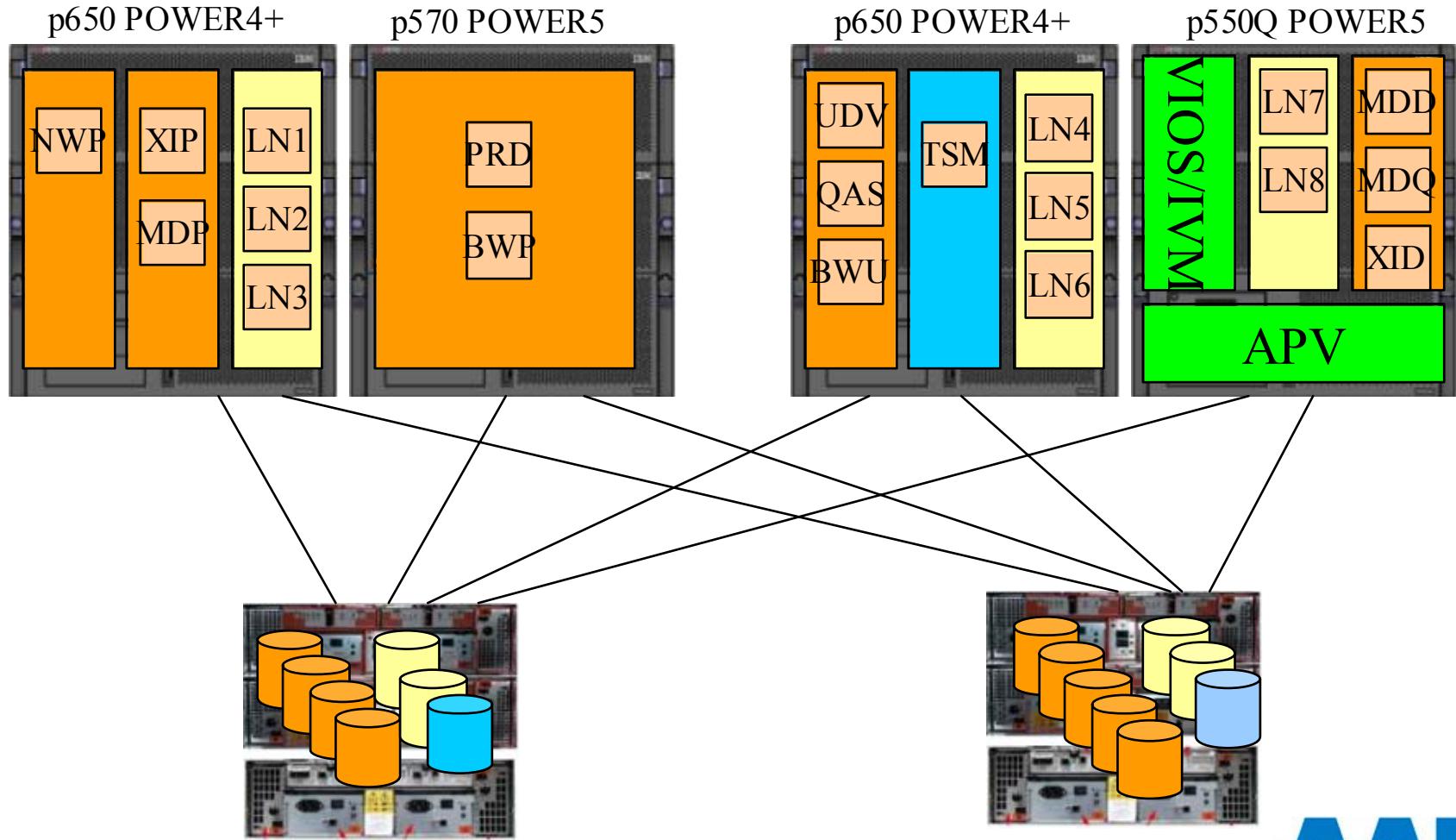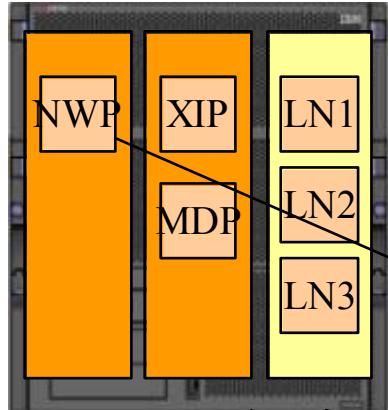
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# POWER implementation at AAK



p650 POWER4+     p570 POWER5     p650 POWER4+     p550Q POWER5

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# POWER implementation at AAK



p650 POWER4+  p570 POWER5  p650 POWER4+  p550Q POWER5

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# POWER implementation at AAK



p650 POWER4+     p570 POWER5     p650 POWER4+     p550Q POWER5

XIP, MDP, LN1, LN2, LN3

PRD, BWP, NWP

UDV, QAS, BWU, TSM, LN4, LN5, LN6

VIOS/IVM, LN7, LN8, MDD, MDQ, XID, APV

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# POWER implementation at AAK

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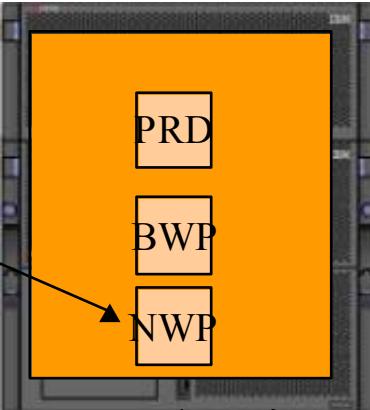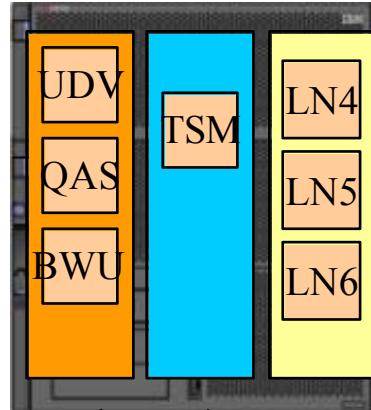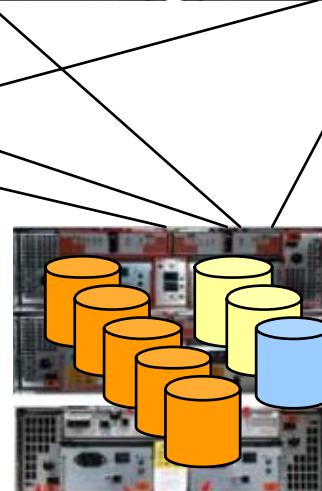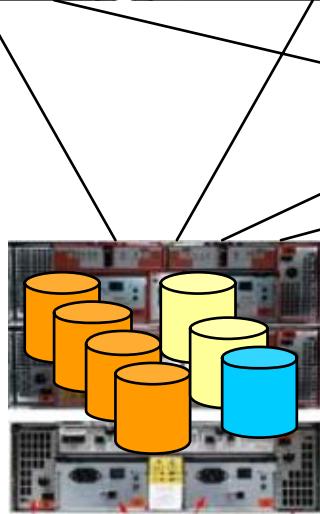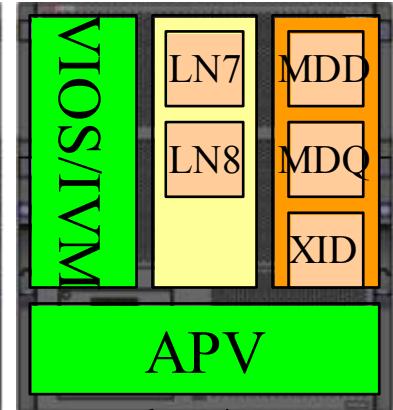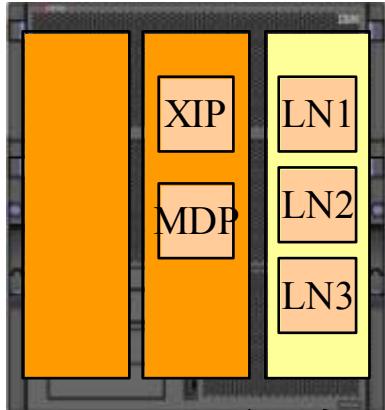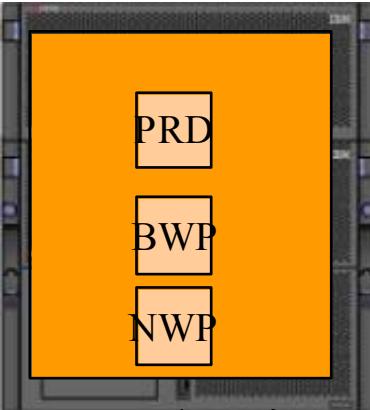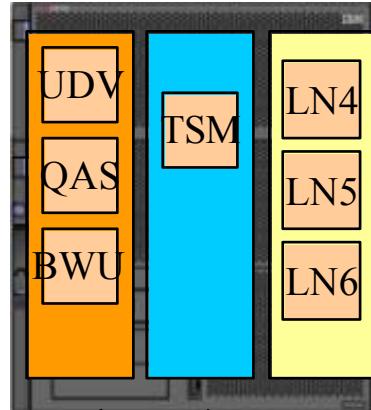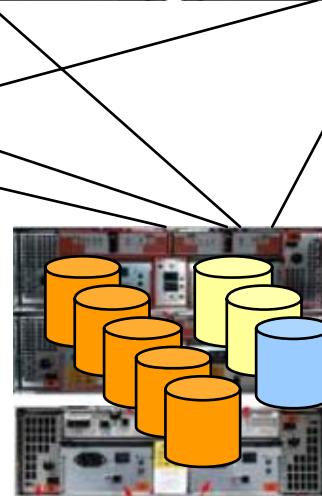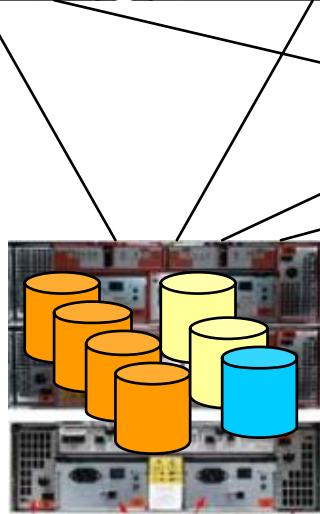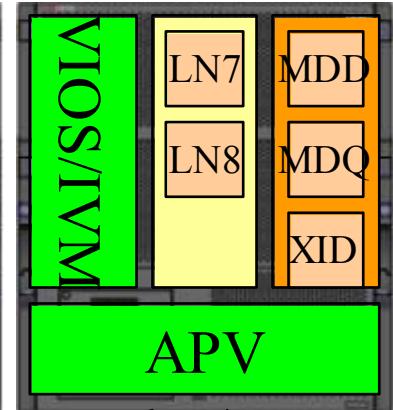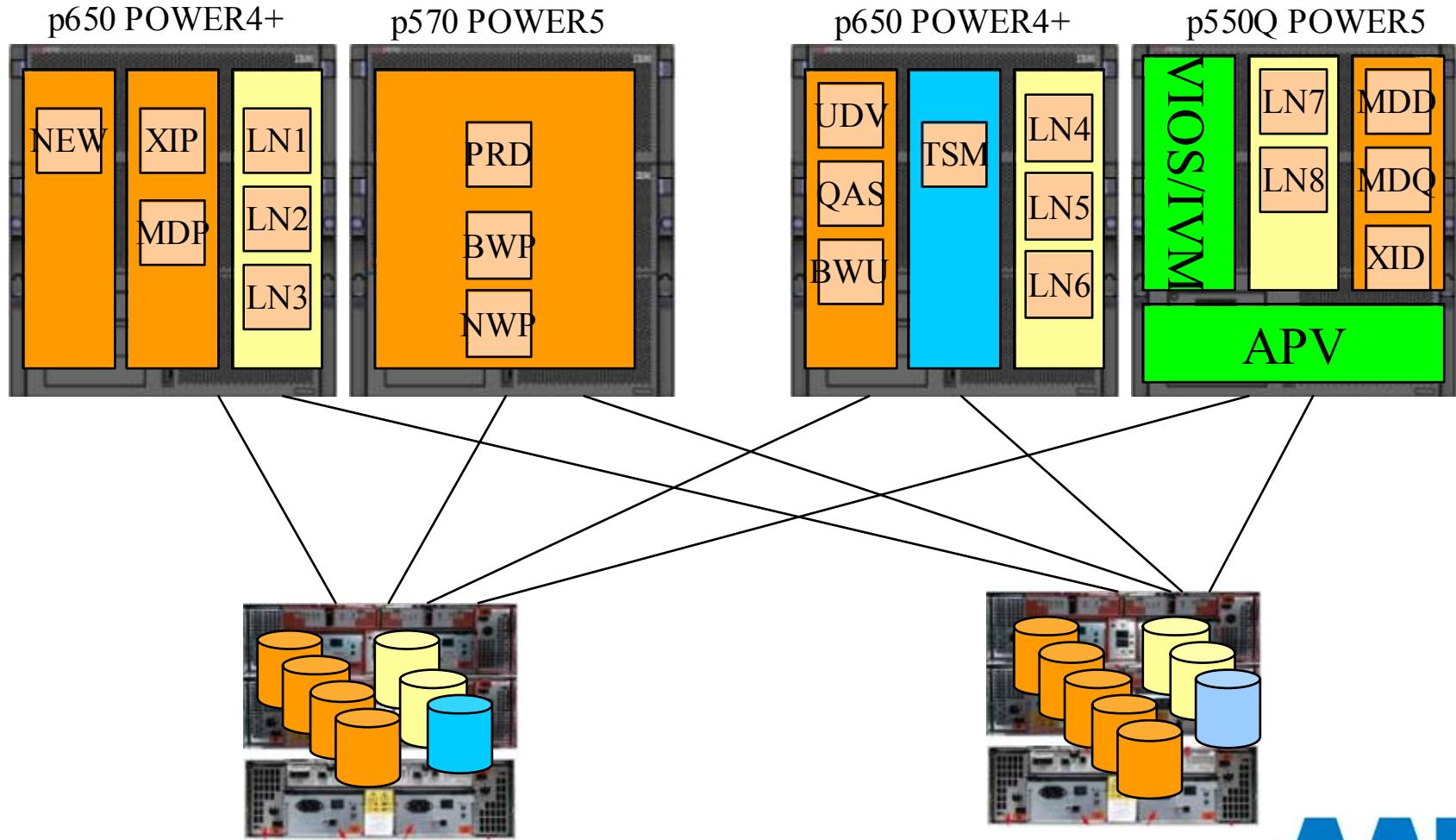
# POWER implementation at AAK
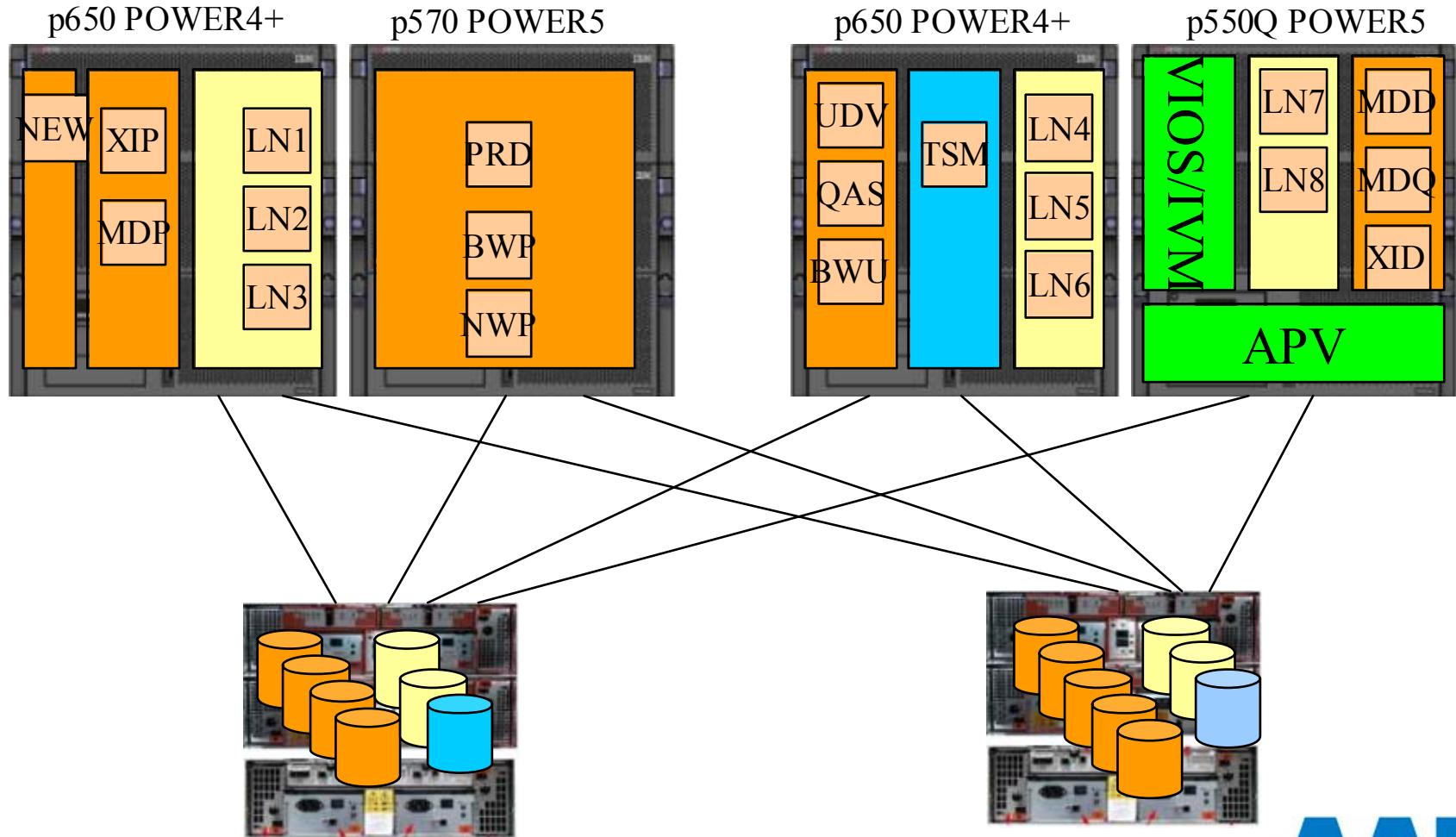
# AAK merger
*Impact on IT set-up*

- 500 new users on Lotus Notes/Domino

- Sales reporting systems

  - *SAP BW – more power to existing BW-system*

- Sales cockpit systems

  - *Lots of new SAP technology used*

    - SAP XI, MDM, and Enterprise Portal

    - 12 new SAP systems

  - *Very fast and efficient to create new LPARs on POWER5 APV*

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# AAK benefits from IBM & POWER technology

- We get a package: Hardware + access to lots of information and Redbooks

  - *We have been able to use IBM's Redbooks as guideline for running SAP & Domino on POWER*

- Open platform – supports open standards

  - *Network, storage, database etc*

  - *Open source Linux programs/code*

    - E.g. SpamAssassin

- Allows for extreme consolidation

- Very flexible platform.

  - *Easy to create space for bigger/new systems etc*

- Fast !

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