



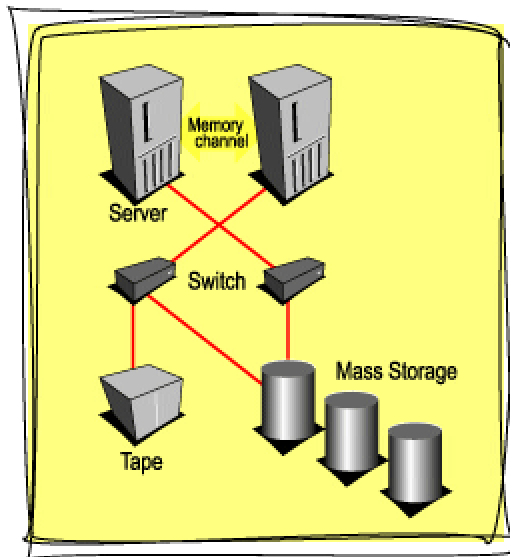
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



Data Handling HPC

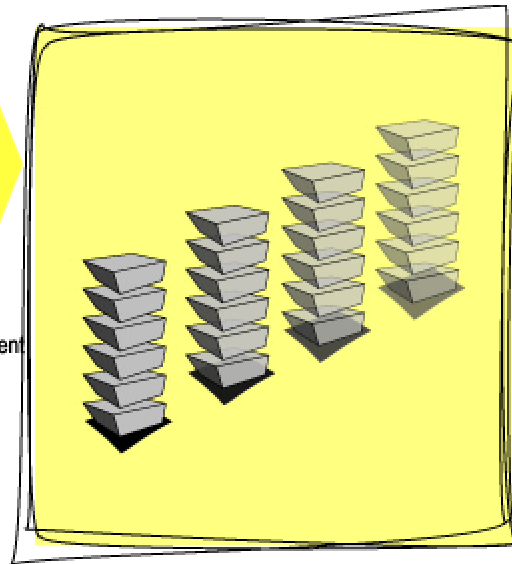
ClusterSolutions
parallel processing

Available,
Secure
Frontend



Secured Frontend & Data Unit

Storage
Archiving
Resource Management

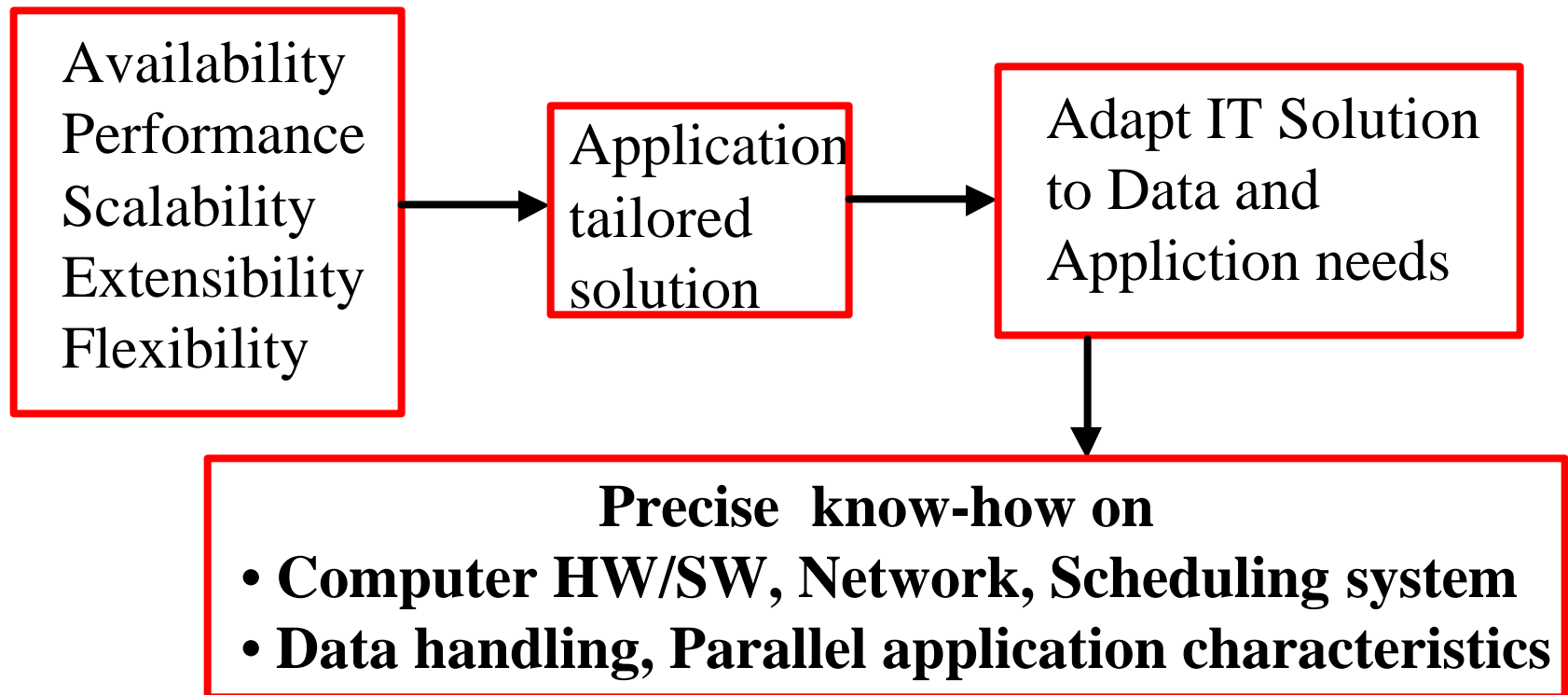


Parallel Processing Unit

Flexible cluster
Application tailored
Computer-type independent

Powerful,
Extensible
Compute
Server

Perfect Adequacy



Communication Paradigms

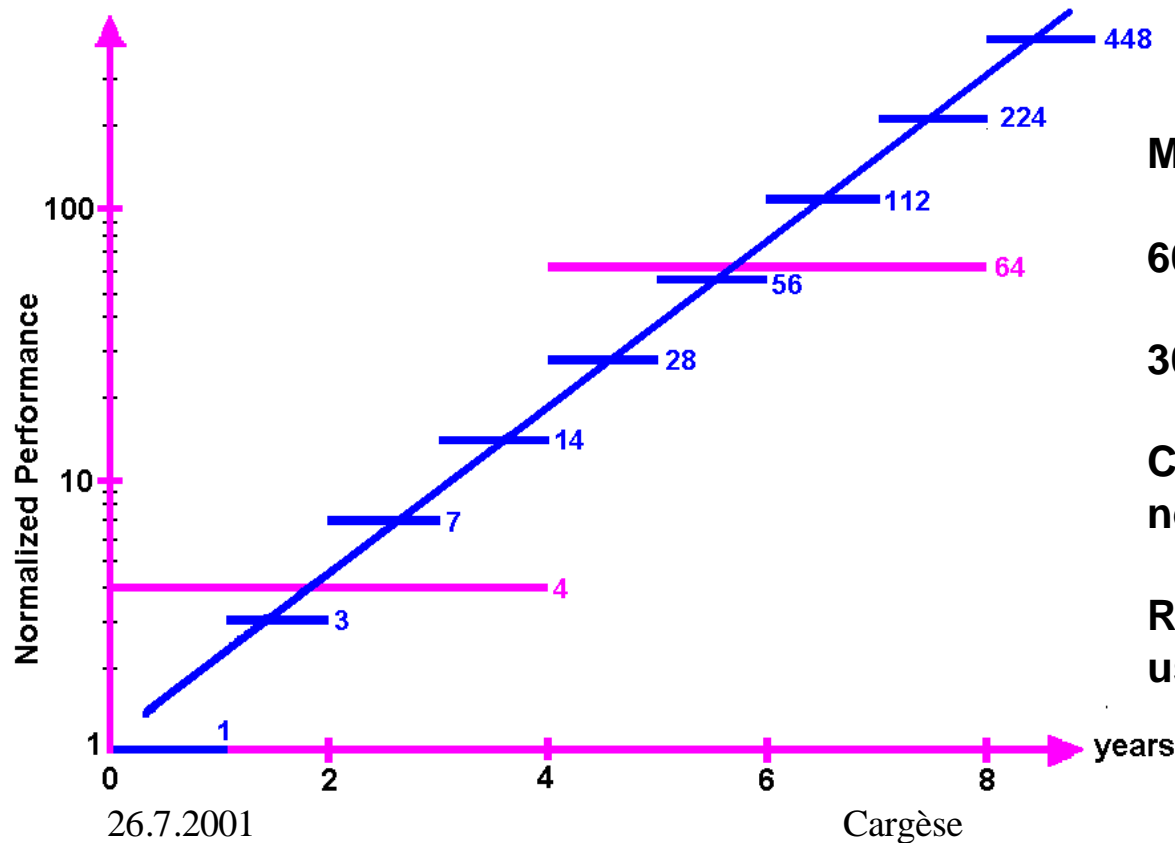
MPICH, MPI, PVM (DM, NUMA, SMP, FE)
MPI, FCI (DM, TNet)
SHMEM, Craft (DM, Cray/SGI specific)
Multi-threading (NUMA, SMP)
OPEN/MP (NUMA, SMP)
Autoparallelisation with KAP (SMP)
Autoparallelisation by Compiler (SMP)
ScaLAPACK, Blacs (DM, NUMA, SMP, FE, TNet)

DA = Distributed memory

How to use parallel machines

Always use MPI
Use math. libraries

New machine installation paradigm



Module renew every 3 years

60% higher average performance

30% less maintenance cost

Compute power follows user needs

Reuse of outsourced boxes as user workstations

6. Resource management

- 6.1. Vendor-independent commercial RM systems**
- 6.2. Special purpose systems**

Commercial RM systems

LSF, GRD/Codine, PBS

Multi-user/Multi-vendor environment

Run on all commercially interesting platforms and OS

Scripting language

Job submission

Job scheduling

Job control

Monitoring

GUI interface

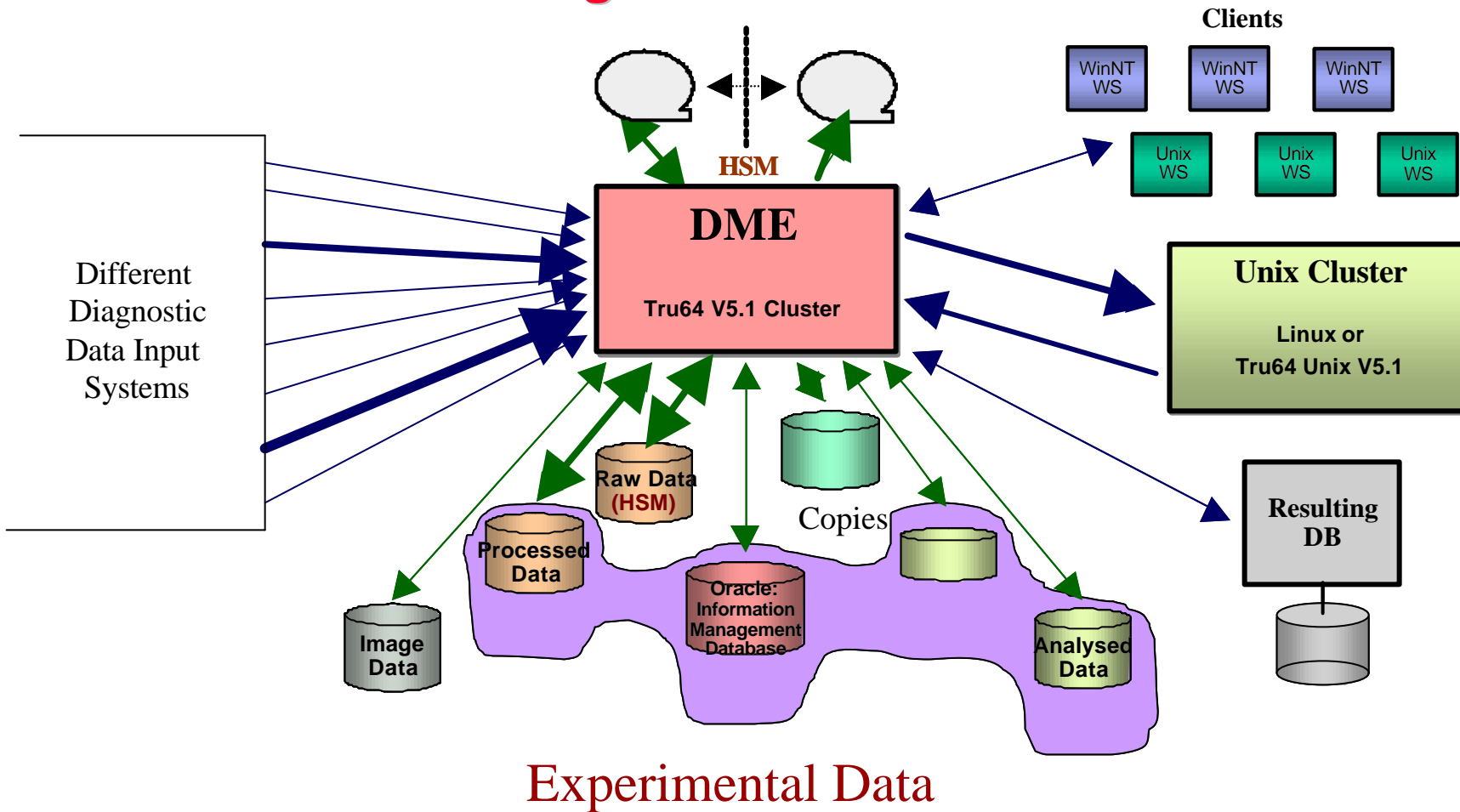
Accounting

Control of processing units, disk, archiving, etc

7. HP storage + archiving

- 7.1. Balanced data flow**
- 7.2. Secure storage**
- 7.3. Data archiving**

Data Management Environment





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