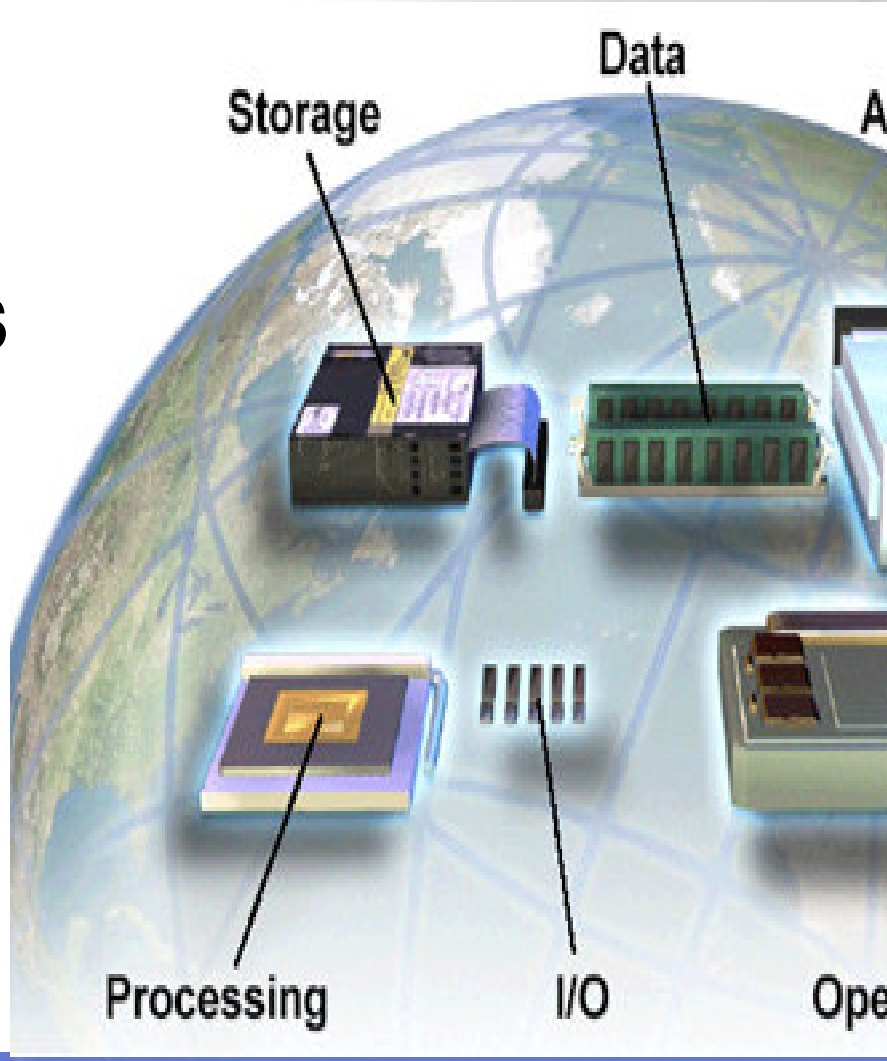
epts of Grid Technologies dustry

scolini
ultant - marco_briscolini@it.ibm.com

o Callegaro
velopment – francesco_callegaro@it.ibm.com

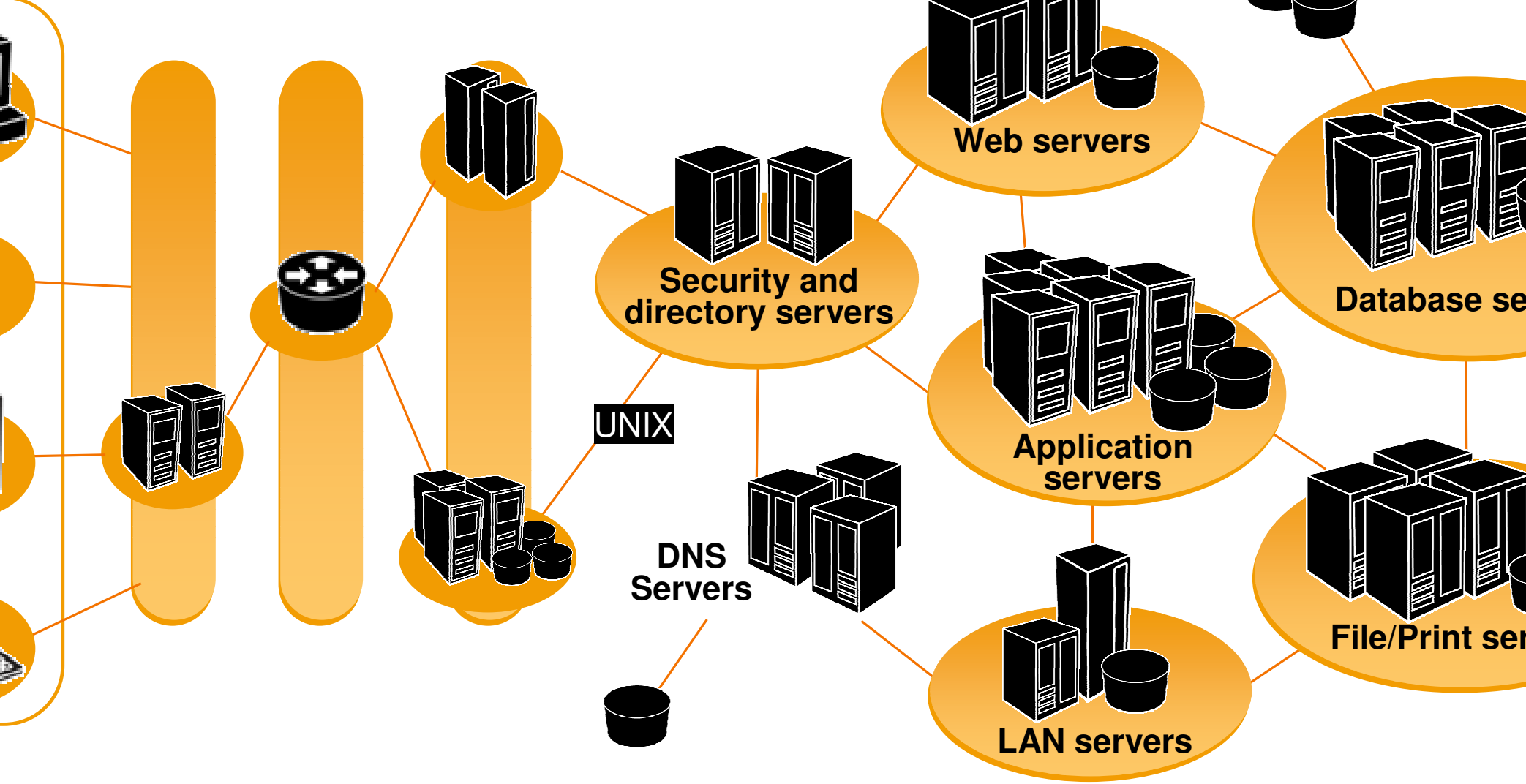
omputing - EMEA Southwest



ENDA

verview

rid Computing Solutions



are based silos

nframes, UNIX, Intel, AMD..

age by vendor or by connection type

re based silos

Solaris, Linux, Windows…

ation based silos

location of resources results in silos at many l

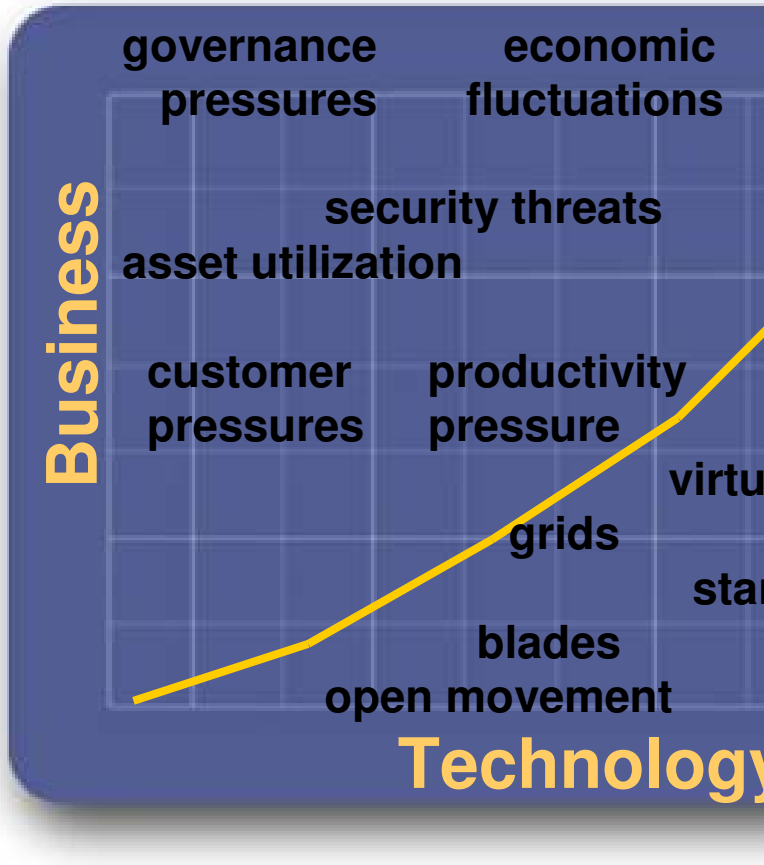
ement of complex, heterogeneous environments too hard

t utilization is too low

ation of technology and platforms to support

onal speed is too slow

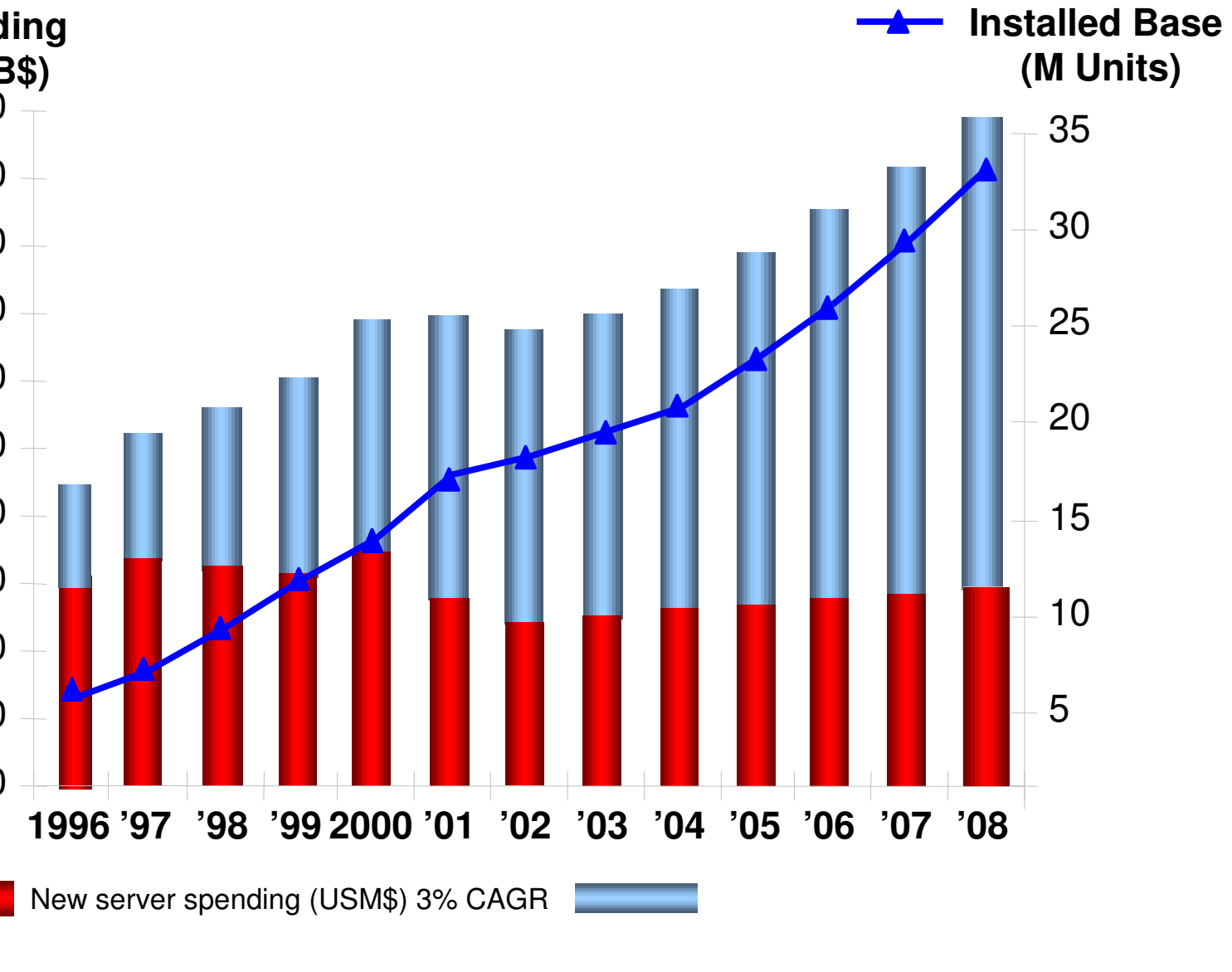
y to manage the infrastructure seamlessly



Result: Infrastructure is under utilized and overly complex

ated Infrastructure-by-Application can inhibit business flex

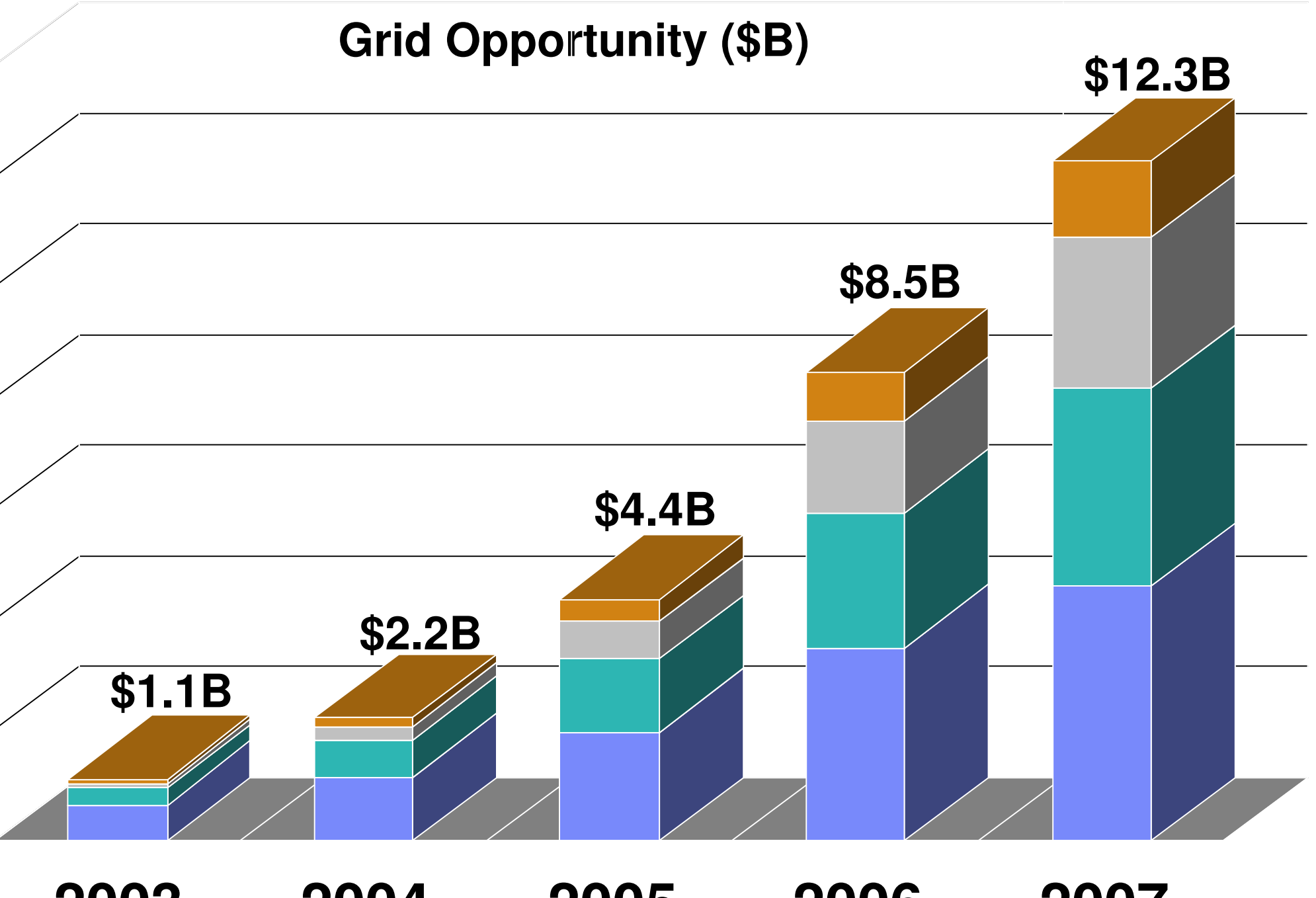
t of People vs. Spending on new systems*



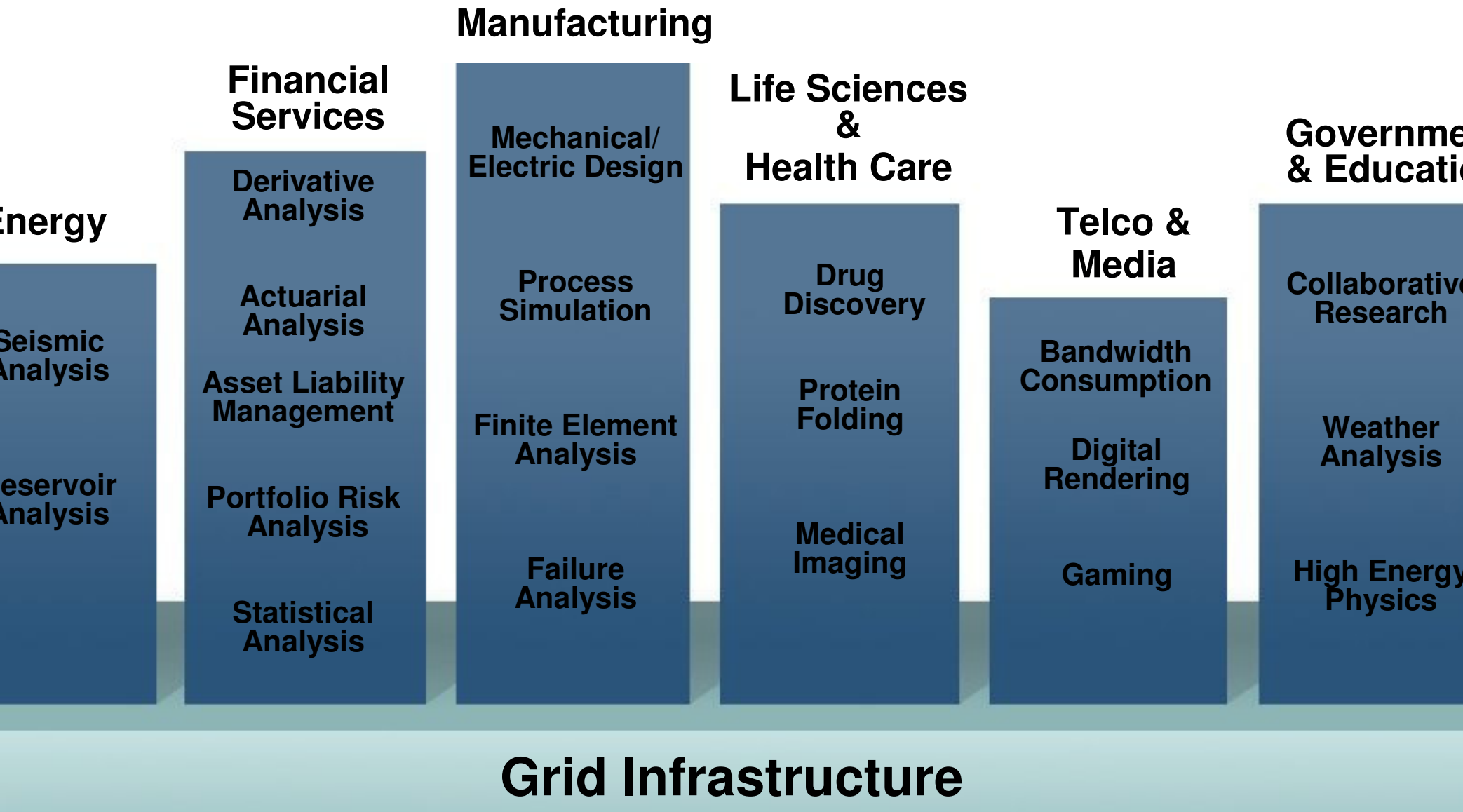
"Data centers ha
become so fragi
administrators a
fearful to touch
existing infrastru
since any chang
set off a series o
events that can
company to its k
Consequently, m
enterprises are
restricted in dep
innovative applic
that could poten
create competiti
advantage."

The Yankee
January

d Opportunity – Growth Curve Surpassing Moore's Law



Grid Computing & Industry Applications



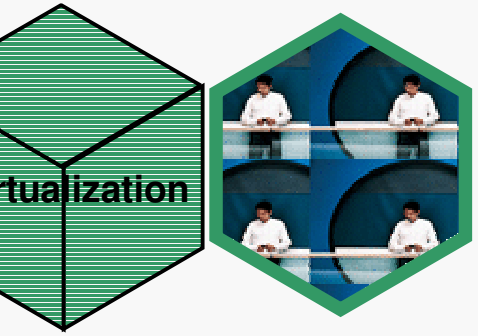
ems agenda

Collaborative Innovation

Better integrate business processes with IT

Openness

Introduce new applications and systems into existing IT infrastructure more easily



Virtualization

Maintain a flexible infrastructure to improve IT systems utilization and productivity

single system image

STANDARD

GGF

OGSA

OPEN GRID SERVICES ARCHITECTURE

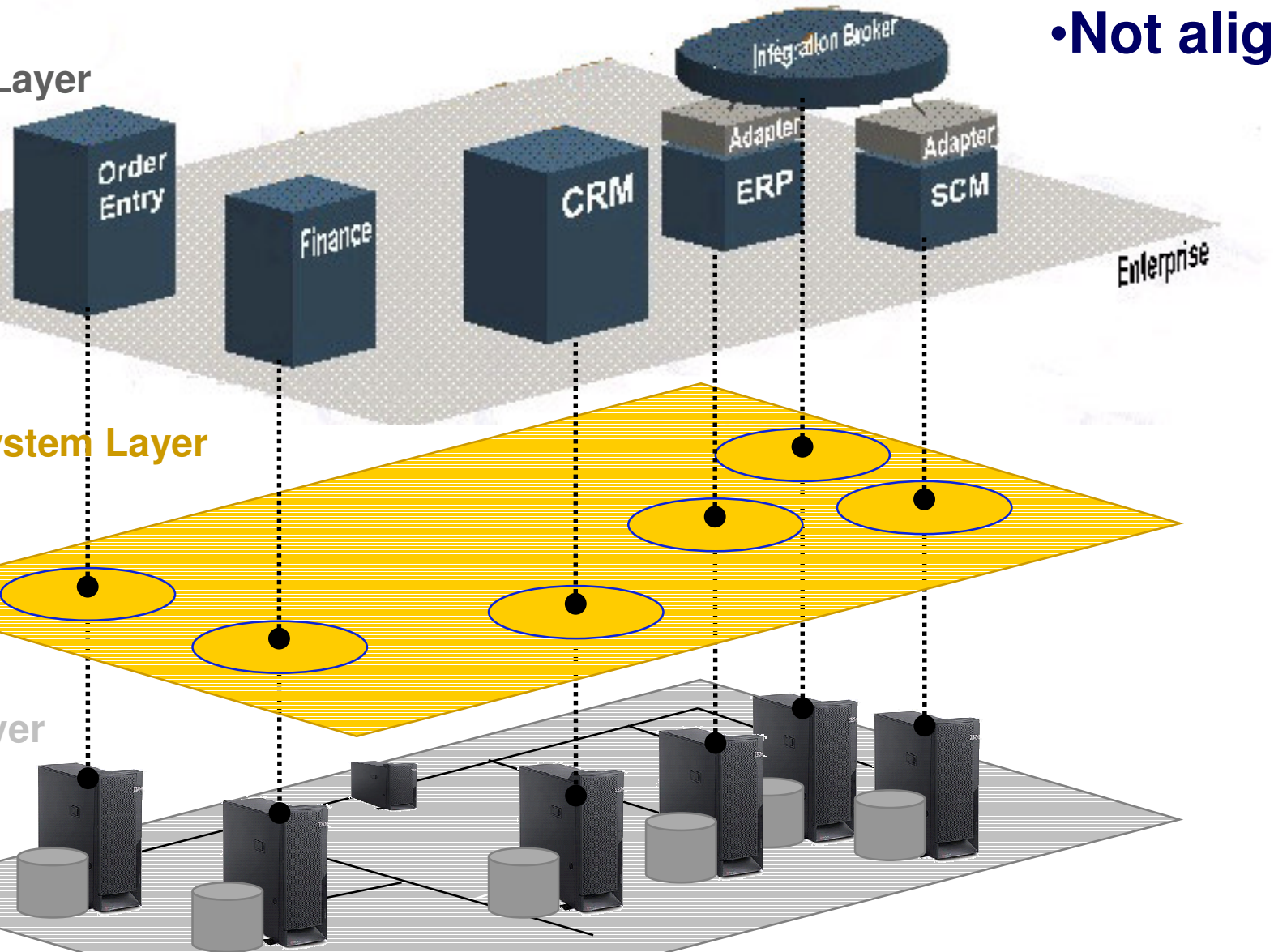
It enables the virtualization of resources building a single system ima

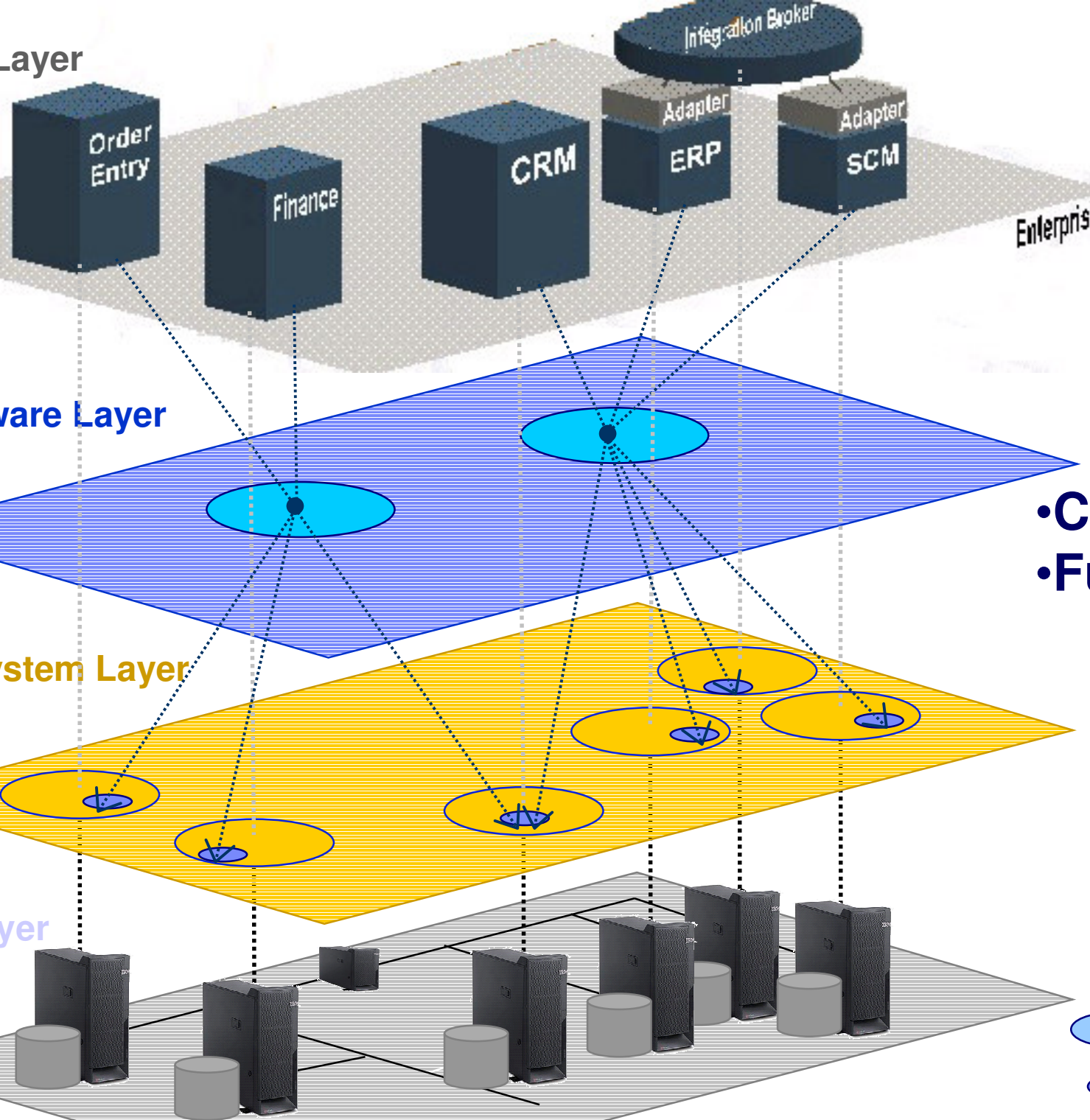
It allows distributed organization to share resources

Users and applications can access large IT capabilities with an easie

tructure (before Grid Computing)
frastructure

- Too costly to manage
- Underutilized and inflex
- Not aligned to business

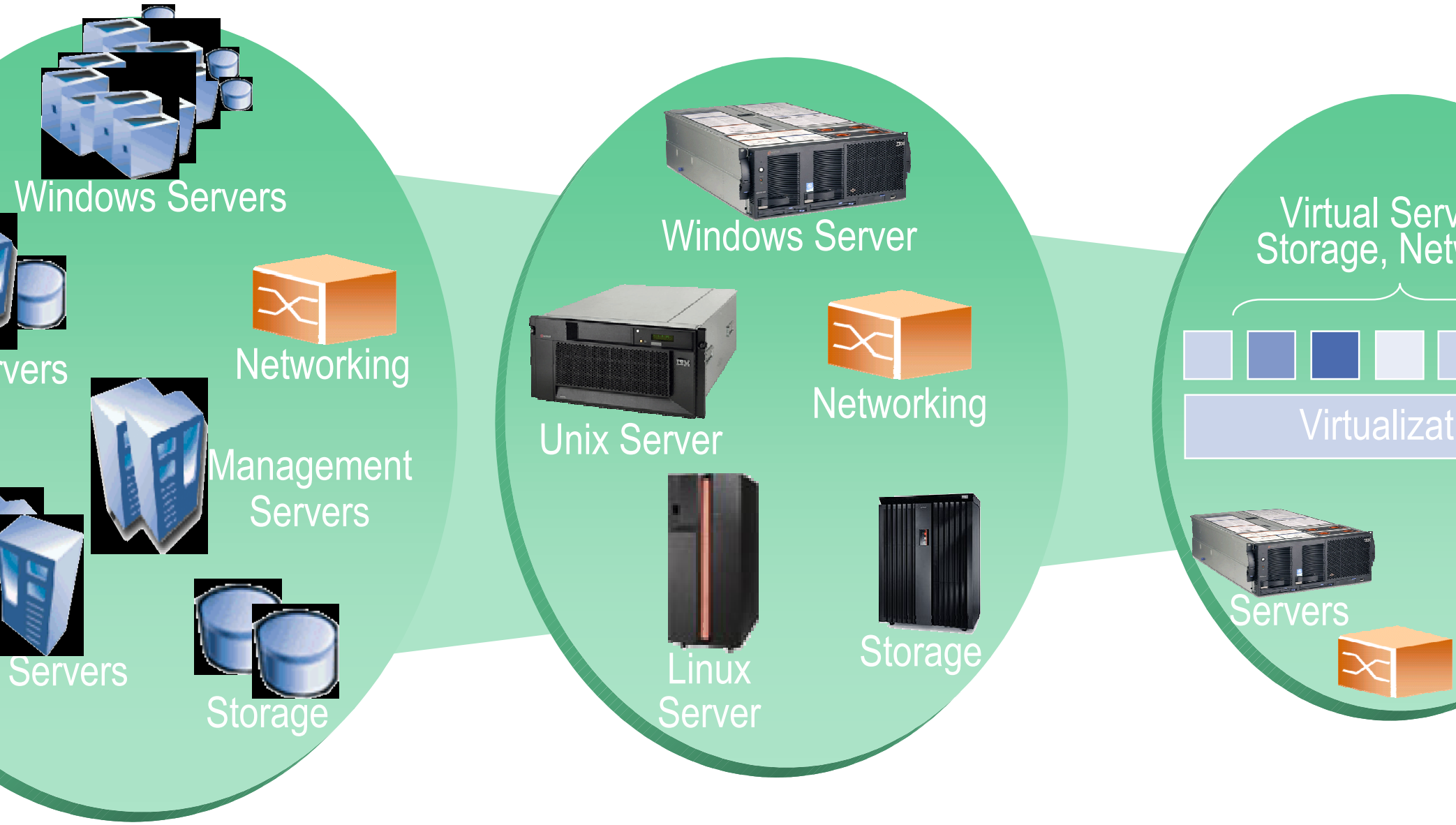


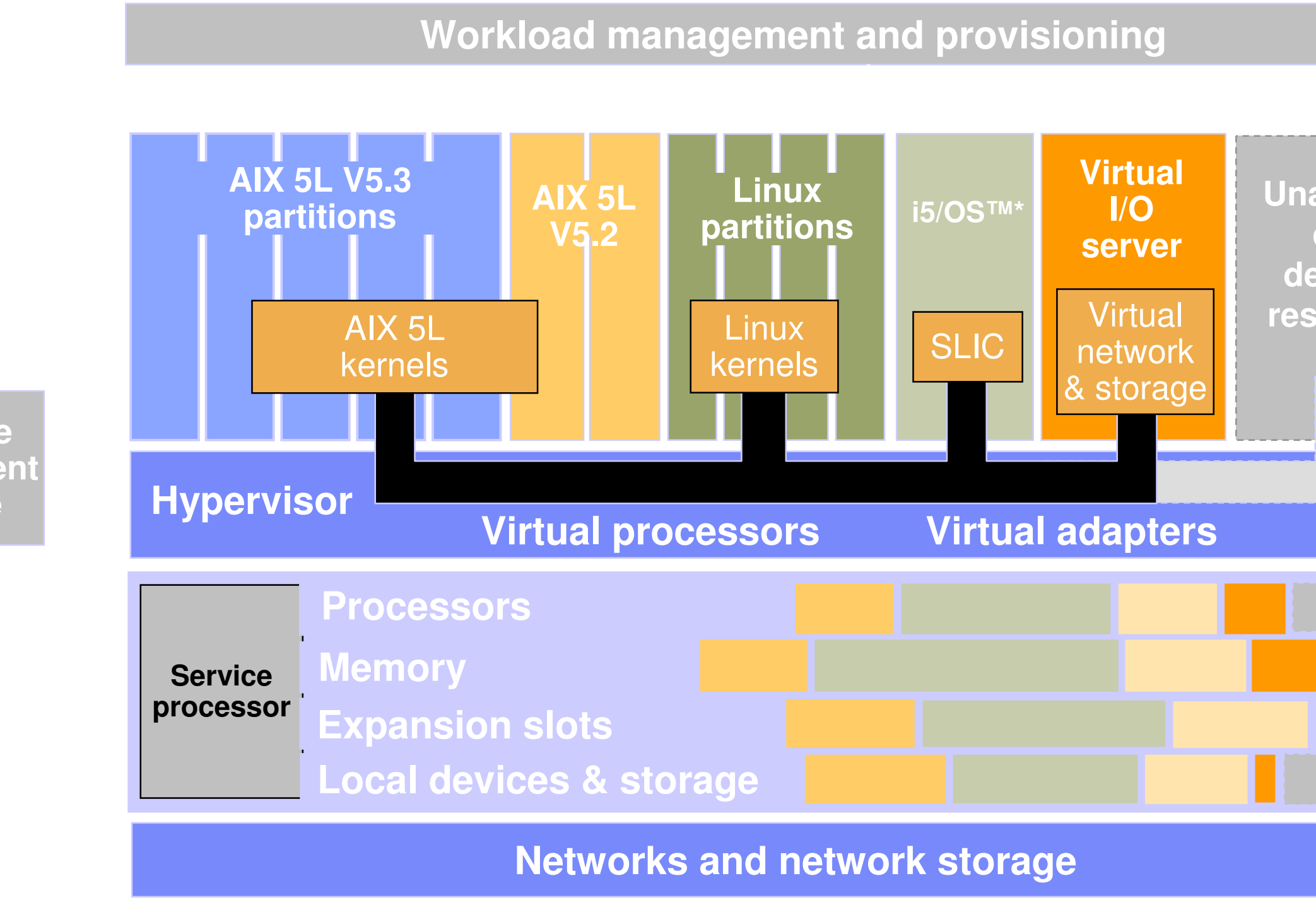


•Cost-effective to ma
•Fully utilizable and f

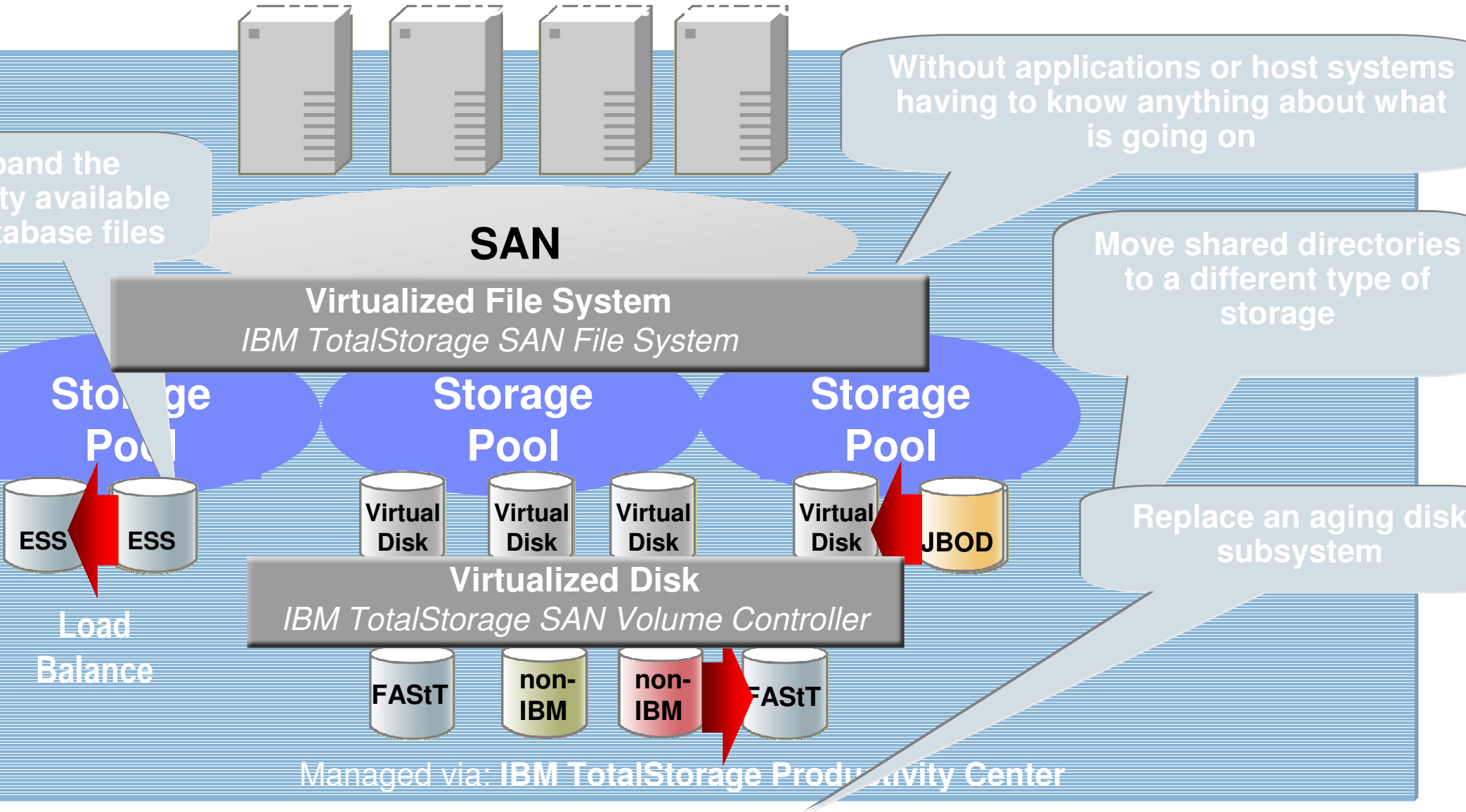
Grid Scheduler

Grid Middleware


Windows Servers
rvers
Networking
Management Servers
Servers
Storage
Windows Server
Unix Server
Networking
Linux Server
Storage
Virtual Serv
Storage, Net
Virtualizat
Servers

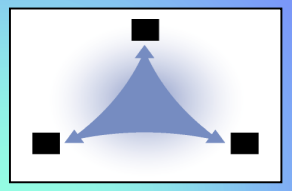

Workload management and provisioning
AIX 5L V5.3 partitions
AIX 5L V5.2
Linux partitions
i5/OS™*
Virtual I/O server
AIX 5L kernels
Linux kernels
SLIC
Virtual network & storage
Hypervisor
Virtual processors
Virtual adapters
Service processor
Processors
Memory
Expansion slots
Local devices & storage
Networks and network storage

ualization Engine Suite for Storage

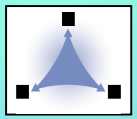


s focused on solutions that help clients ze value from the full spectrum of grid computing solutions

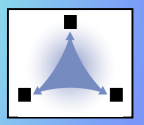
Virtualize Like Resources



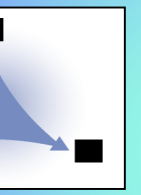
Cluster



Simple (2-4)



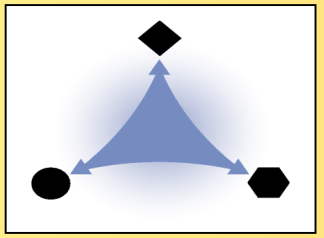
Sophisticated (4+)



ystem oning)

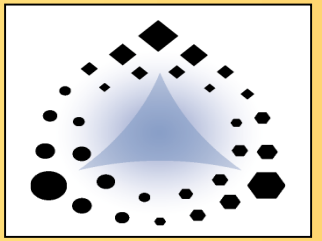
Homogeneous systems, storage, and networks

Virtualize Unlike Resources



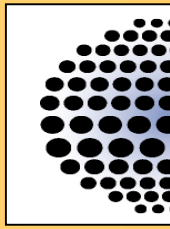
Heterogeneous systems, storage, and networks; Application-based Grids

Virtualize the Enterprise



Enterprise wide Grids, Information Insight, and Global Fabrics

Virtualize O Enterp



Suppliers, partne and external

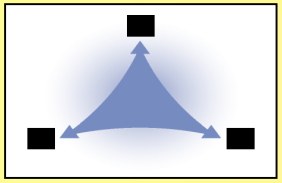
"Grid and Grow" Offering Target Space

ogeneous
rganization

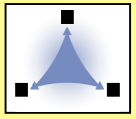
Hetero
Multiple O

focused on solutions that help clients
e value from the full spectrum of grid
computing solutions

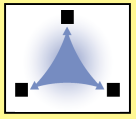
tualize Like
esources



Cluster



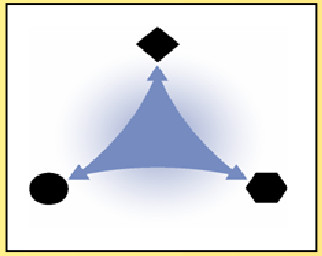
Simple
(2-4)



Sophisticated
(4+)

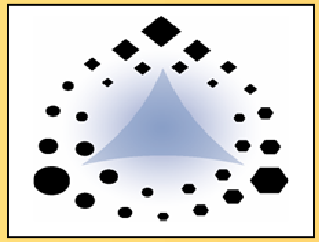
IBM Grid & Grow

Virtualize Unlike
Resources



Clash
Analysis

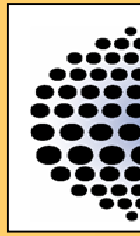
Virtualize the
Enterprise



Grid Medical
Archive Solution

Optimized Analytic
Infrastructure

En



Econ
Developm

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Hetero
Multiple C

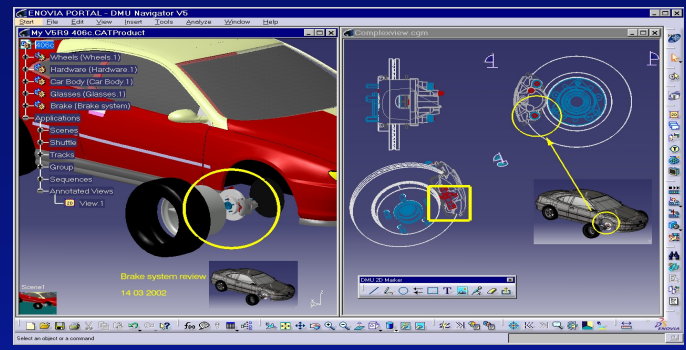
Automotive

STEYR

ge

nuch time required to effectively run clash
between complex sub-assemblies which
ts quality
end product and getting the product to
t on time.
nuch administrative time required from
n engineers

nabled clash environment. IBM developed
and services using Platform Computing LSF
ssault Systemes CATIA & ENOVIA DMU
ations providing clash detection analysis.



Benefits:

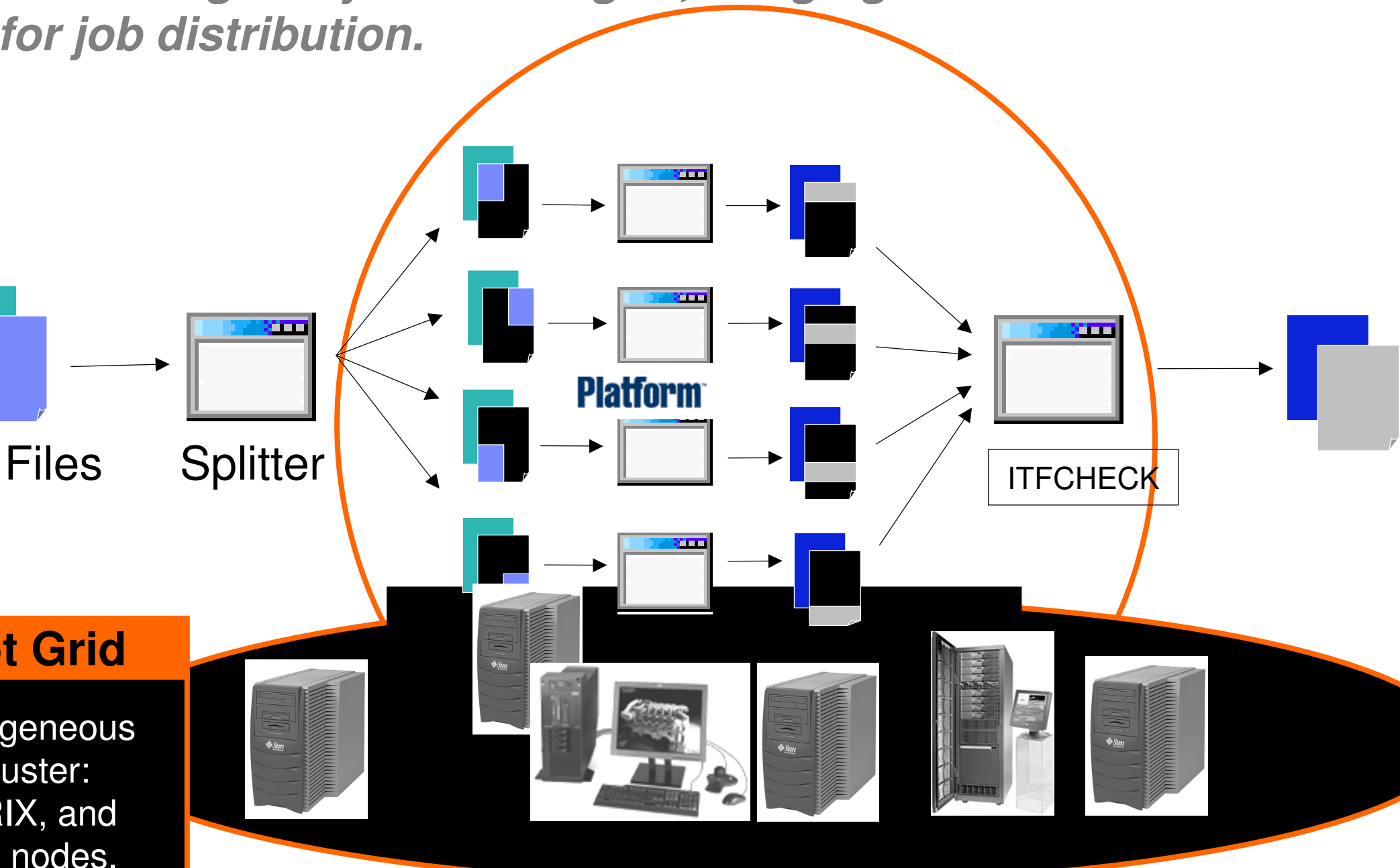
- Significant performance improvement (72 – 4h
- Risk and Error Reduction
- Cost Reduction
  - Increased accuracy of data improves quali
    reduces late changes)

Improved Time to Market

- Faster evaluation of design alternatives
- More accurate and timely product developm

chnology from IBM and Platform Computing reduced the time required for our clas

buted Clash Detection: IBM developed code used for splitting in
submitting sub jobs to the grid, merging the results. Platform L
for job distribution.



t Grid

geneous
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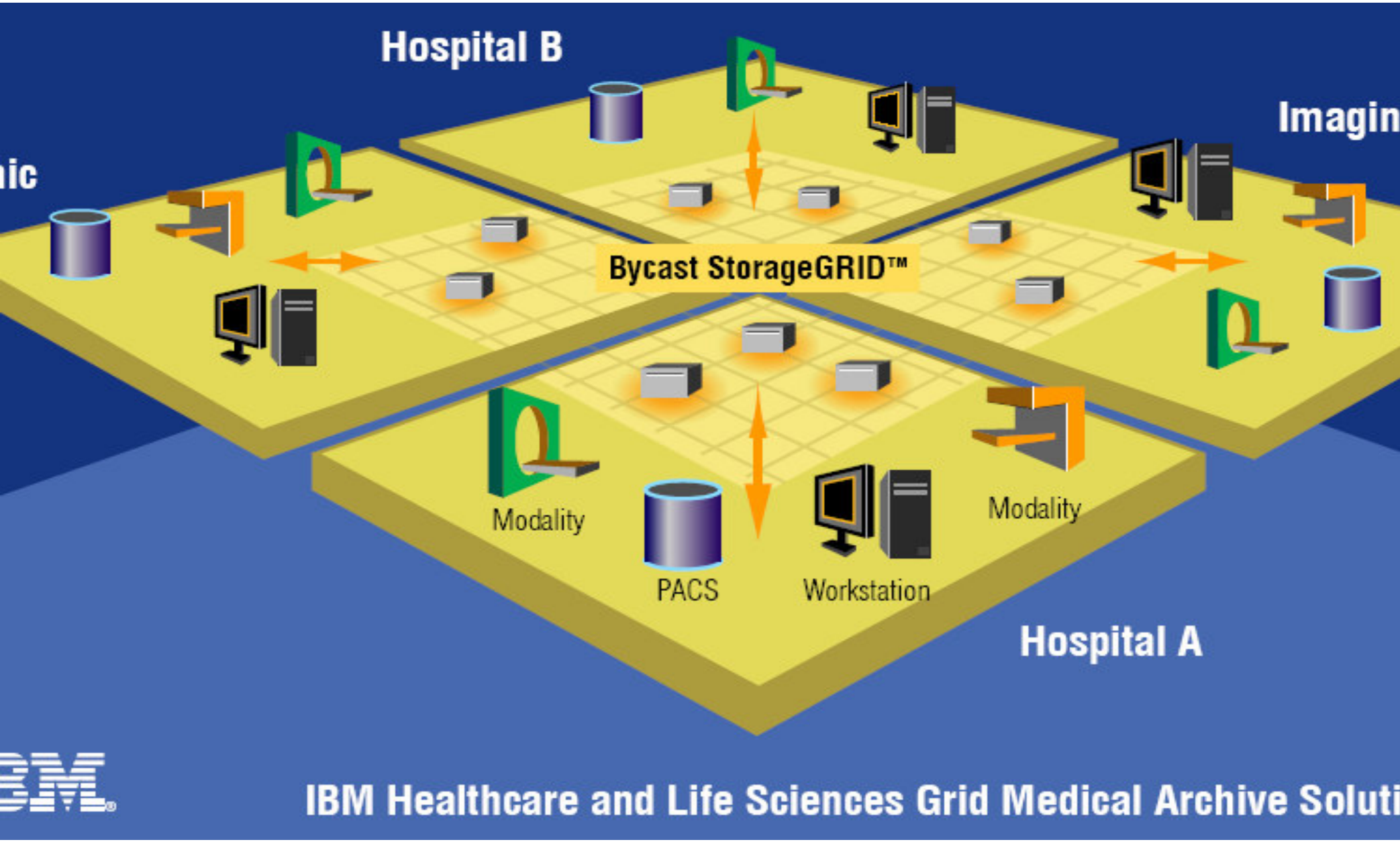
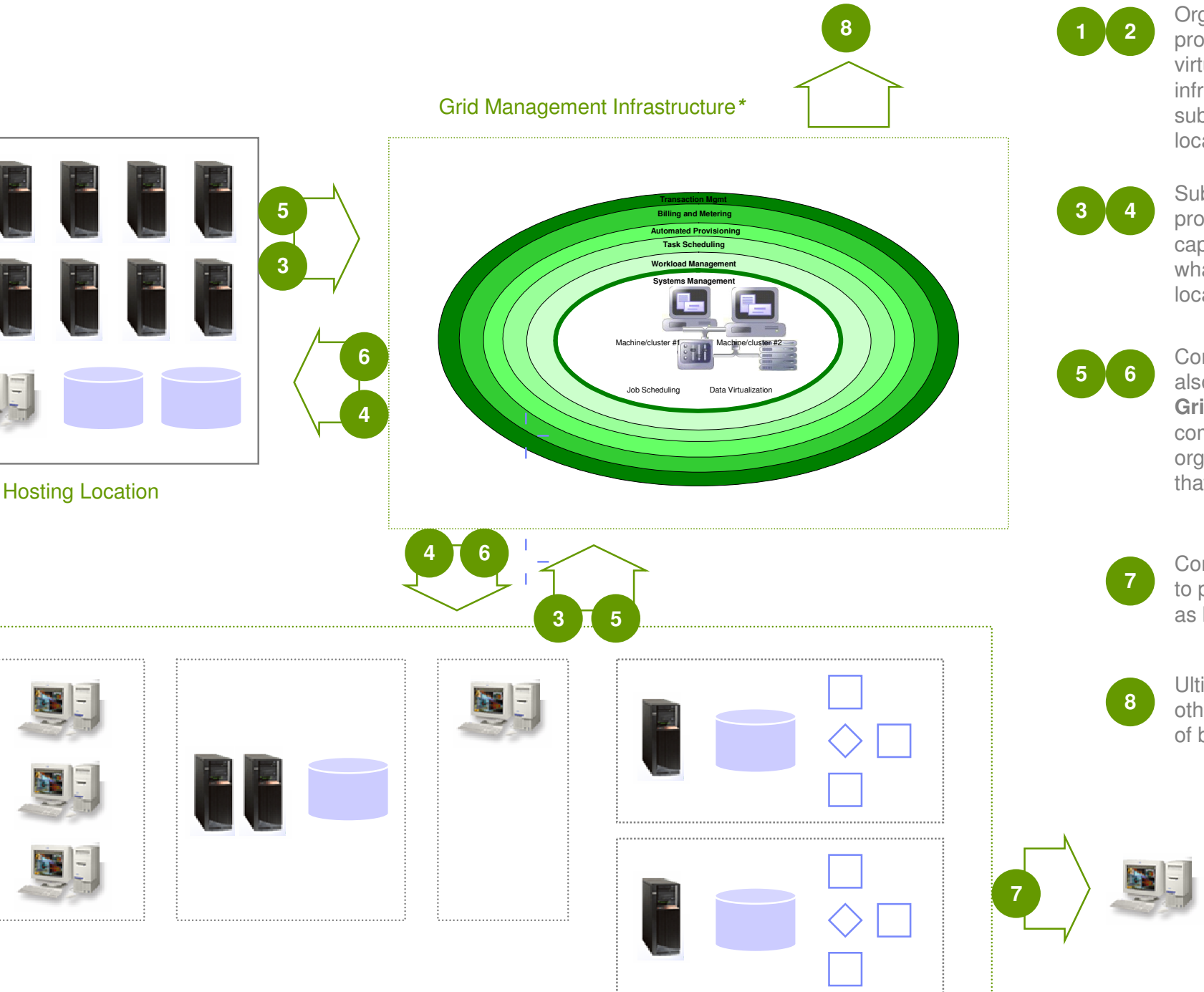
IX, and
nodes.



IBM's GMAS is a multi site, multi-tier, multi-application ***fixed***



1 2 Organizations will contribute comp provision the **Resource Sharing C** virtual network connected by the g infrastructure. Equipment can be h subscriber premises or in a comm location.

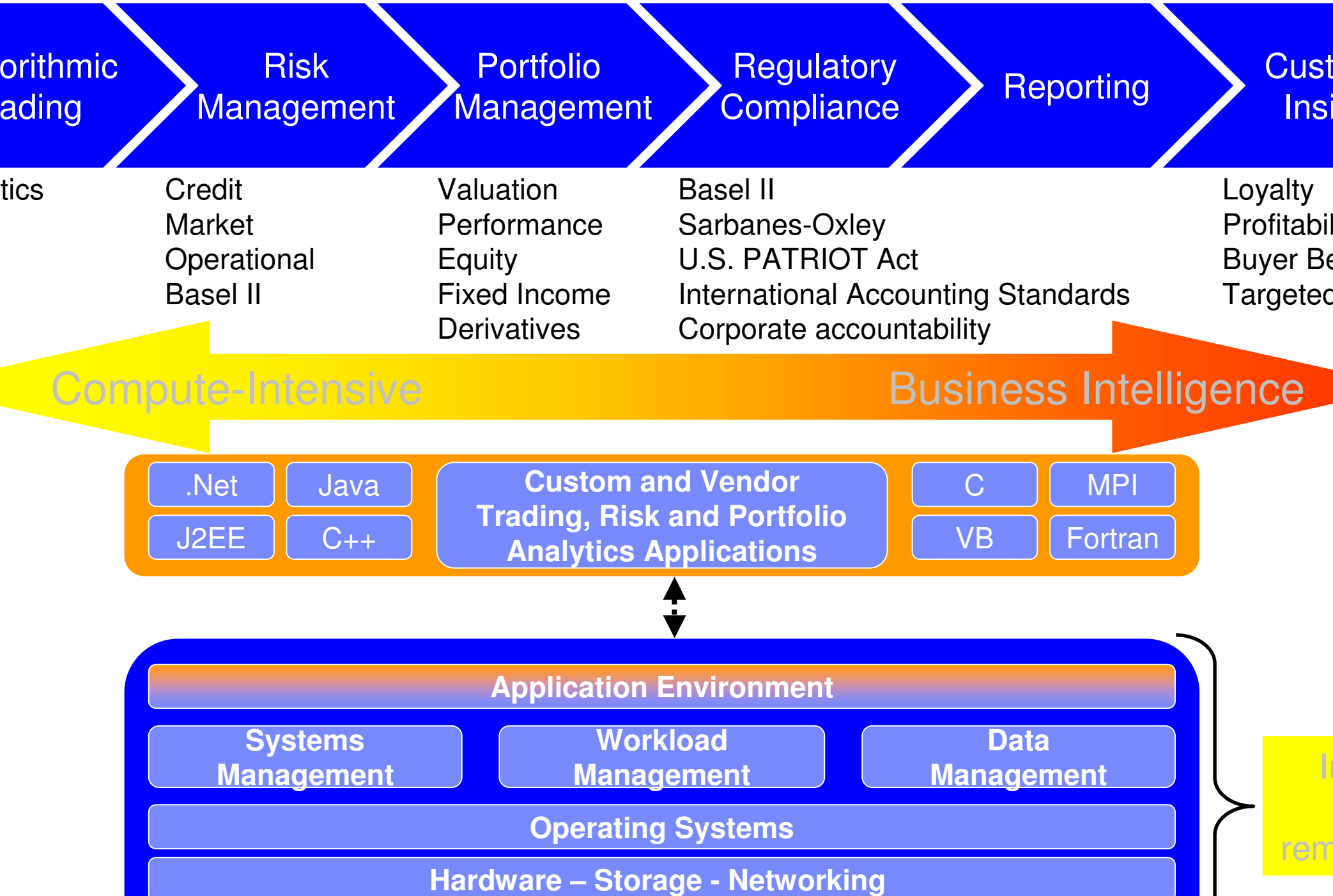
3 4 Subscribers can request additional processing or alert the grid that the capacity for others to utilize. The g what resources are available in eit location or subscriber premises.

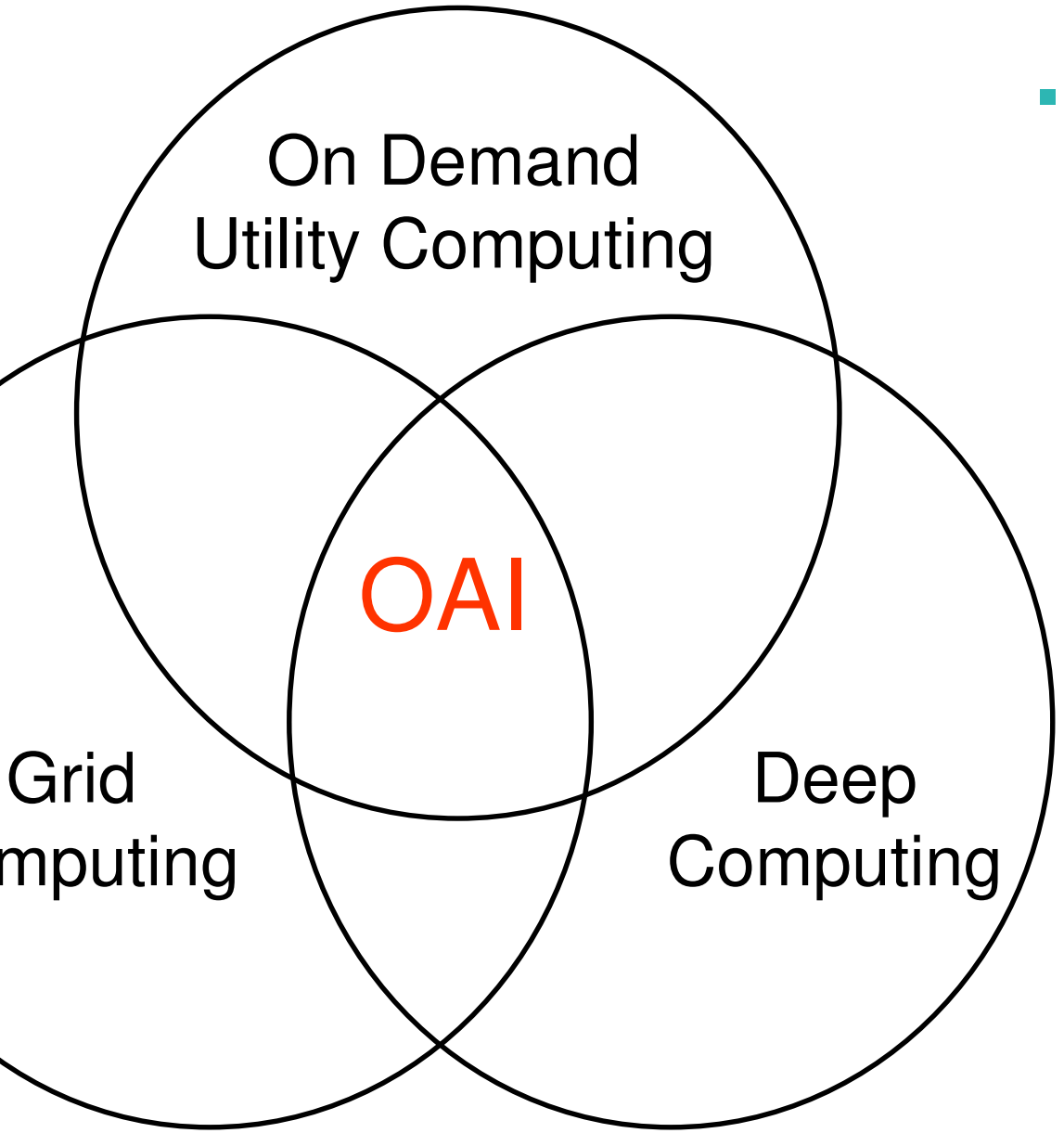
5 6 Computers and other sources con also make information available as **Grid**. Similarly, the virtual network computers in a **Process Integrati** organizations to integrate and strea that go across organizational boun

7 Community users will benefit from to public information and improved as building permit application and

8 Ultimately, the grid community cou other grids outside of the region to of business collaboration.

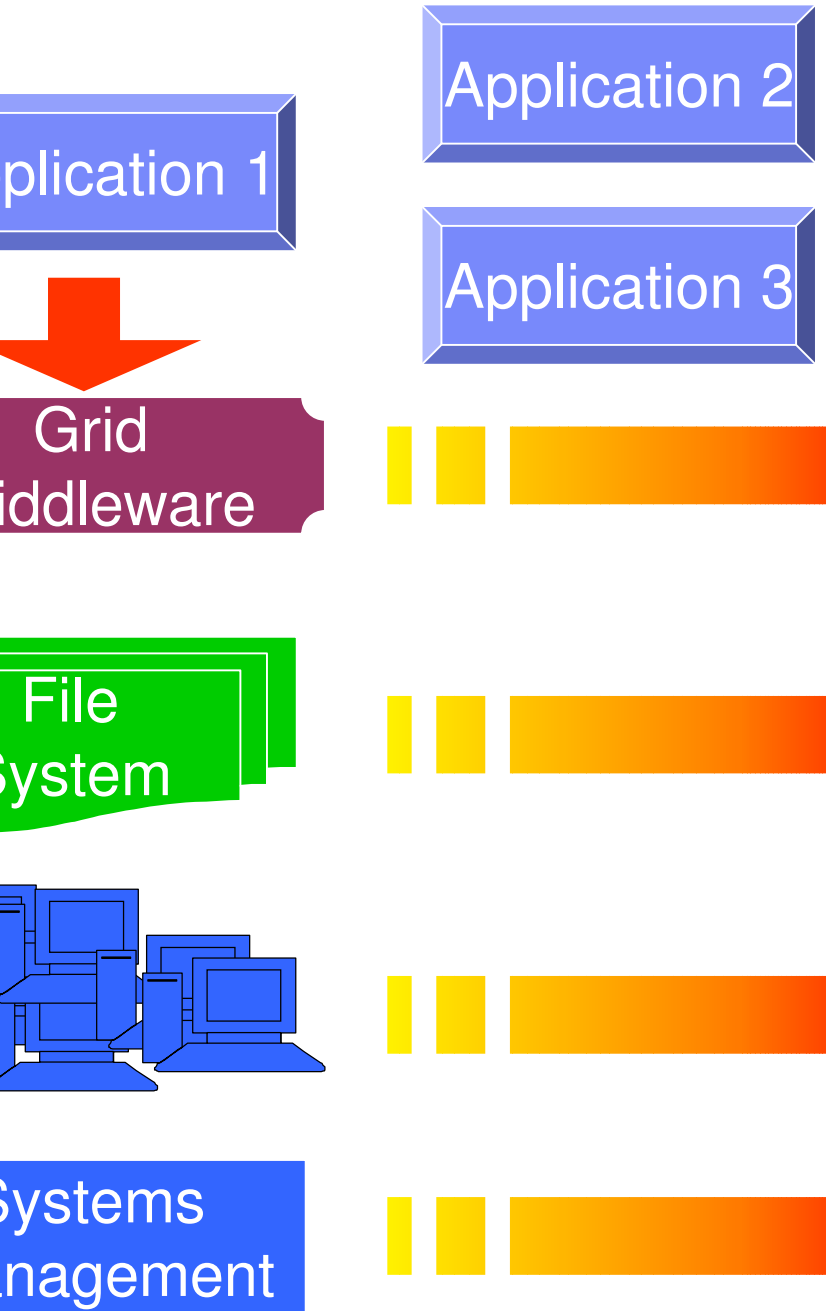
al Services Workloads





- Helping clients optimize their HPC a infrastructure in the areas of:
  - Scalability
  - Latency
  - Agility
  - Cost
  - In-house IT footprint
  - Availability
  - Resource utilization
  - Data access
  - Manageability

nges customers face in building out and growing their analytic infrastructures to support
oss the enterprise



Application Management
Time to deploy new applicatio

Workload Management:
Scalability and performance degra

Data Management:
I/O bottlenecks and geographic dis

System Performance:
Cost, utilization and space

Systems Management:
Manual with no feedback

lution addresses the challenges in creating a low-latency, high performance, scalable and automate
frastructure

Application Web

Simplified, consistent, repeatable and rapid global deployment of applications

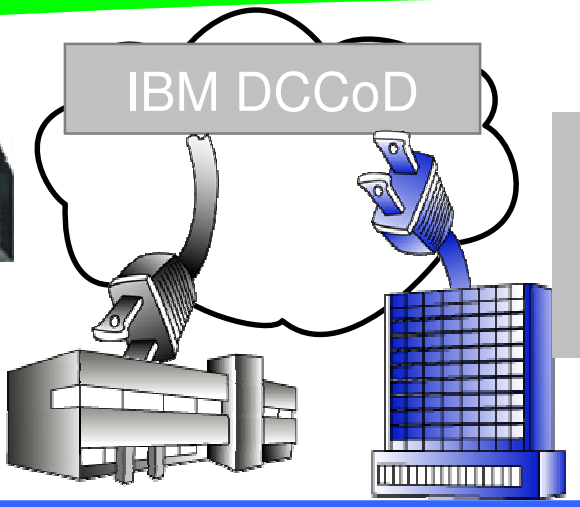
Grid Middleware

PBS Pro

LoadLeveler

File System

GPFS: *Enhanced parallel performance and scalability for single and geographically dispersed environments*



Flex expe scal busine

Systems

CSM / IBM Director

Thanks