Evolution of the Data Center and the Mainframe

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Focus

- Current data center trends, best practices and issues

- State of the mainframe, strengths, value proposition, evolving positioning, and issues

- The intersection of virtualization and consolidation, steps for success and considerations

Data Center Challenges

- Do more with less

- Create a 24x7x365 infrastructure

- Rationalize to fewer of the same types of things, minimize complexity

- Create a component based, shared and policy managed environment

- Support business process agility and timeliness

- Create common processes across all infrastructure domains

- Mitigate corporate risk

Today's IT Realities

- Most infrastructure components are under-utilized

- The vast majority of IT infrastructure support and operations groups are domain based (siloed)

- Most IT services have inconsistent service level management, measurement and communications

- Almost all IT organizations have an incomplete asset inventory with weak costing and financial capability

- There are too many unique services and solutions with limited infrastructure leverage and common automation

- Storage/server growth, data center environmentals, protection-compliance, and management remain primary CIO pain points

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Infrastructure Trends and Best Practices Process Optimization

- IT process optimization and silo elimination has been successful in over 20% of the G2000. Over 75% of all IT organizations have efforts underway

- Over 55% of global organizations have a common management structure with most adopting ITIL based processes and CobIT based measurement metrics

- Expectation setting is critical and incremental proof points require a solid benchmark of the current environment including costs and a true reflection of service capabilities

- Facilities management and energy issues have reached marquee status within IT organizations with over 45% of the G2000 building/ rehabbing data centers

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Infrastructure Trends and Best Practices Data Center Optimization

- Logical consolidations (people, processes, tools) must precede physical consolidations to be cost effective and successful

- Shared infrastructure environments begin with rationalization of servers, storage, and networks

- Intel/AMD servers represent over 65% of data center capacity

- Windows represents over 55%

- Linux is the fastest growing data center OS

- VMware is running on over 30% of data center x86 servers

- Mainframe based consolidations/virtualization provide best process optimization and economies

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Infrastructure Trends and Best Practices Storage

- Mid-range storage tiers (including capacity solutions) have a CAGR of over 75%

- Capacity storage (SATA, FC capacity drives) is proving to be good enough for most all requirements except high transaction data bases

- NAS and SANs are converging, iSCSI beginning to gain traction within data centres

- Disk based solutions are increasingly pushing tape/ATL options further down the storage hierarchy toward long term archival and off site storage

- Infrastructure virtualization is a data center imperative

Current state of the mainframe
"The mainframe is not going away "

Continues to evolve

- Over 60% of growth attributed to "new age" applications

- Platform of choice for transaction intense applications, primary data, and data serving

- Hub for enterprise security

- Industry leading workload management and virtualization

- Unmatched reliability, availability, and scalability

- Most environmentally friendly platform, by far

Current state of the mainframe

Remains a relevant platform within 75% of the Global 2000

- Over 200 billion lines of Cobol in production, growing in excess of 8%/year

- Over 11 million MIPS installed, growing in excess of 20%/year

- Over 50,000 CICS licenses

- Business class systems are penetrating new named accounts

- DB2 continues to own the mainframe database market

- IBM spending billions on the system

Mainframe Facts

- Mainframe offer unique economies of scale, distributed is linear

- Software price per transaction decreasing in excess of 15%/year

- Offload engines can reduce annual software and one time charges by over 40%

- Requires less than 50% the operating personnel verses distributed

- Labor costs per transaction decreasing over 17%/year

- Over 1.5 million MIPS running Linux (IFL), 25% of new MIPS sold

- Over 60% of new MIPS sold are specialty/offload engines

Technology Leadership

- Most scalable platform within the data center

  -Up to 54-way, 64 bit 600 MIPS processors, 512GB memory, 366 FICON channels, 60 partitions

- Unmatched managed virtualization capability

- Standards based support – Linux, SOA, Web services, J2EE

- Integrated and industry unique specialty engines (CP, ICF, IFL, zAPP, zIIP) and interpartition communications (HyperSockets)

- Industry leading security, resilience, intelligent workload management, and on demand capabilities

- Industry leading clustering – Parallel Sysplex and GDPS

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Value proposition

The Mainframe is a cost effective enterprise consolidation, unification and virtualization solution, with heterogeneous standards driven capabilities that expand it's traditional roll:

- Unique workload management including cross platform optimization and simplified bullet proof security

- Proven data serving, root cause analysis and business integration capabilities

- SOA capability to assemble, deploy and manage composite applications

- Unmatched scalability, availability and offload capabilities

- The most energy efficient platform in the data center

Value proposition, continued

- Offers highest resource utilization, consistently exceeding 85%

- Unique non-disruptive upgrades and on demand capability

- Dynamic, shared, and robust memory, cache and I/O capability

- Delivers industry unique economies of scale

- Platform partitioning has the highest security classification

- Special hardware pricing for new workload

- Specialty engines are discounted 91% and DR engines 98% with no charge upgrades to new generation technology
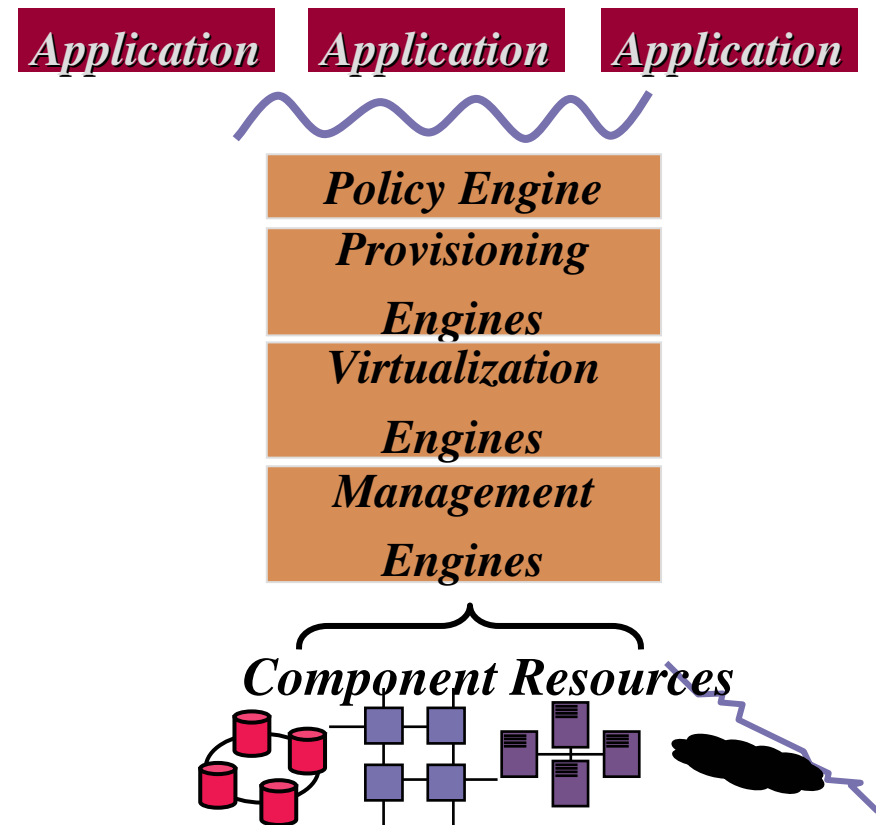
Value proposition, continued

- Creative software pricing through sysplex aggregation, sub-capacity pricing, and new application licensing charges deliver improved economies of scale across the platform

- Expanding to a wider set of workloads including data warehouse, data analytics and mining, content management, web & collaboration content data base

- Increasing enterprise roll in SOA, web serving/proxy caching, gaming, systems management, application accelerators

- Leading platform for simplification of global IT infrastructures

- The mainframe is enhancing its roll in enterprise IT, no longer an island

Challenges – though all being addressed

- Industry perception

- Traditional software costs

- Effective positioning within IBM server products, including blades

- Continued availability of qualified support personnel

- More competitive entry level pricing

- Maintain momentum of on going adoption of current hardware and software technology

- Continued simplicity improvements

The Target - Virtualizing the Data Center into the Service Center

- Dynamic service - based computing

- adaptable to variable/changing requirements

- Policy - based end-to -end dynamic management

- Optimized, componentized and shared infrastructure

- Dramatic people productivity improvements

Application   Application   Application

Policy Engine

Provisioning Engines

Virtualization Engines

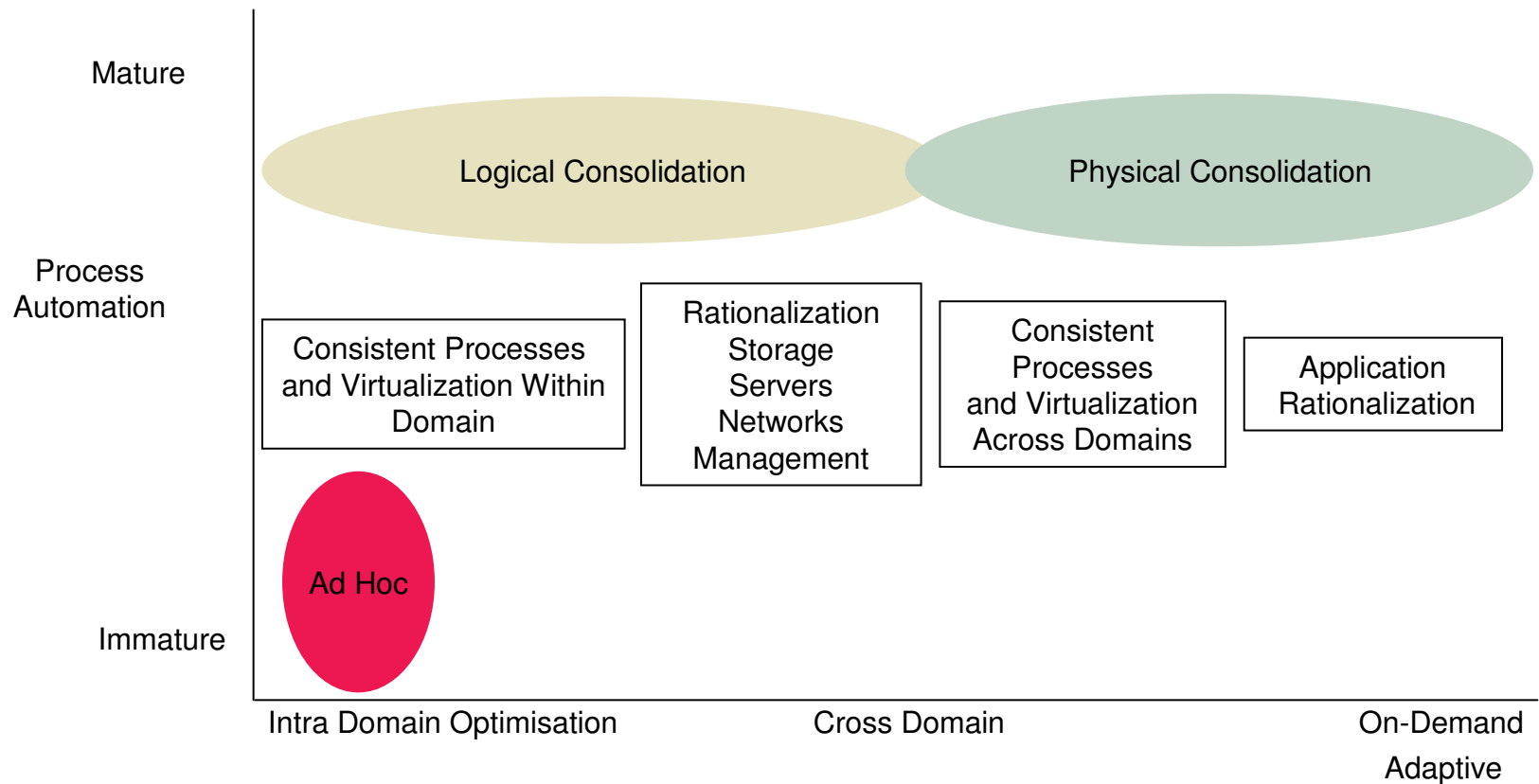**Management Engines**

Component Resources

Virtualization Benefits

- Takes consolidation activities to the next level

- Dramatically improves provisioning time

- Lower hardware and support costs through common shared assets

- Improved development, testing and legacy support (applications and OS's)

- Enables common heterogeneous and componentized services

- Improves availability through isolation and hot standby capabilities

However, Getting There is a Journey

- Consolidation and rationalization activities should include virtualization

- Virtualization enables higher asset utilization however resource requirements must be well understood

- Effective consolidation, rationalization, and virtualization activities drive more effective data center environmentals

- Holistic and heterogeneous virtualization management is just evolving so deployments should be incremental and domain specific

- Business and corporate support required and incremental proof points maintain project momentum
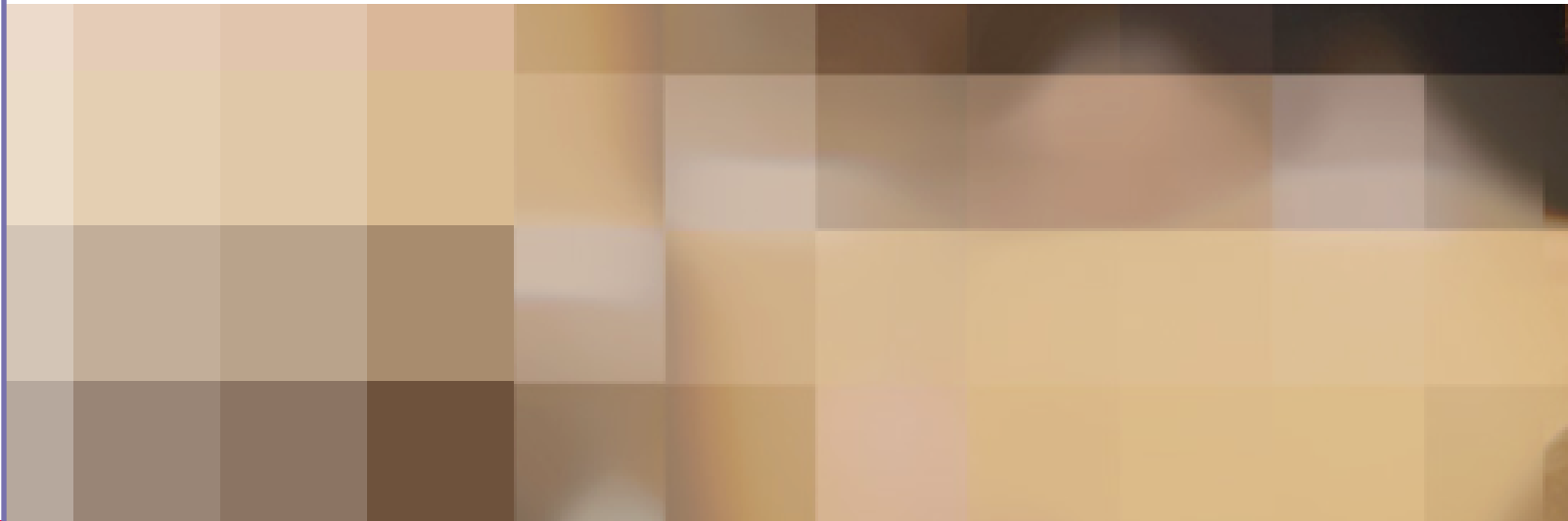
Transformation Steps

Mature

Process
Automation

Immature

Logical Consolidation

Physical Consolidation

Consistent Processes
and Virtualization Within
Domain

Rationalization
Storage
Servers
Networks
Management

Consistent
Processes
and Virtualization
Across Domains

Application
Rationalization

Ad Hoc

Intra Domain Optimisation · Cross Domain · On-Demand Adaptive

- Achieving 70% - 80% infrastructure, process and application standardisation is a win!

Simplification: An IT Imperative

- Embrace process optimization across all domains and holistic automation, including the mainframe

- Virtualization benefits increase with extended deployments

- Common and consistent management drives further efficiencies

- Start with primary data center pain points

- Always benchmark current environment so incremental improvements can be effectively demonstrated

- The effort establishes an adaptable and componentized infrastructure that will complement/enhance SOA activities

Thank you

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