

# Cloud - Moving from Myth to Reality



Workload Decomposition & Placement

**PCTY2011**   
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**Optimizing the World's Infrastructure**  
10<sup>th</sup> May London



## The challenges that prompt a move to Private Cloud

- x86 Server Virtualization project has been completed
- Radical cost savings are still required
- Business is used to Cloud like services through consumer focused public cloud offerings, so is demanding more from IT for less...
- New entrants into markets don't need to make large IT investments to get started as IT investment costs can be on 'pay-as-you-grow' basis
- Application provisioning times need to be slashed from weeks and months to days
- Accurate chargeback models are required to make the move from a cost to profit centre
- Large non-x86 server estates are still largely monolithic in architecture and are costly to run and operate
- The IT budget is split 80% on keeping the lights on and 20% on innovation, whilst the business requires the split the other way round

# Consequences of lack of action on Cloud

- Pressure from IT's internal customers to deploy services quicker and at lower costs as Cloud moves into the mainstream
  - One UK Bank had a LOB deploy a Public Cloud offering from Google without consultation with the IT dept...
- Without Cloud type offerings deployed, the businesses competition will be quicker to react when launching new applications or systems, leading to loss of 1<sup>st</sup> mover advantage.
- Without an internal scalable, elastic, easily provisioned, simply charged-back infrastructure the case for either outsourcing or Cloud increases
- Cloud computing offers the promise of starting new businesses relatively easier, without the high burden of IT capital expenditure of the past. This opens up many industries to new breeds of "IT asset light" competitors.

# Criteria for Success of Cloud Systems

**Highly secure multi-tenancy with isolation**

**Self-service portal via Service Catalogue**

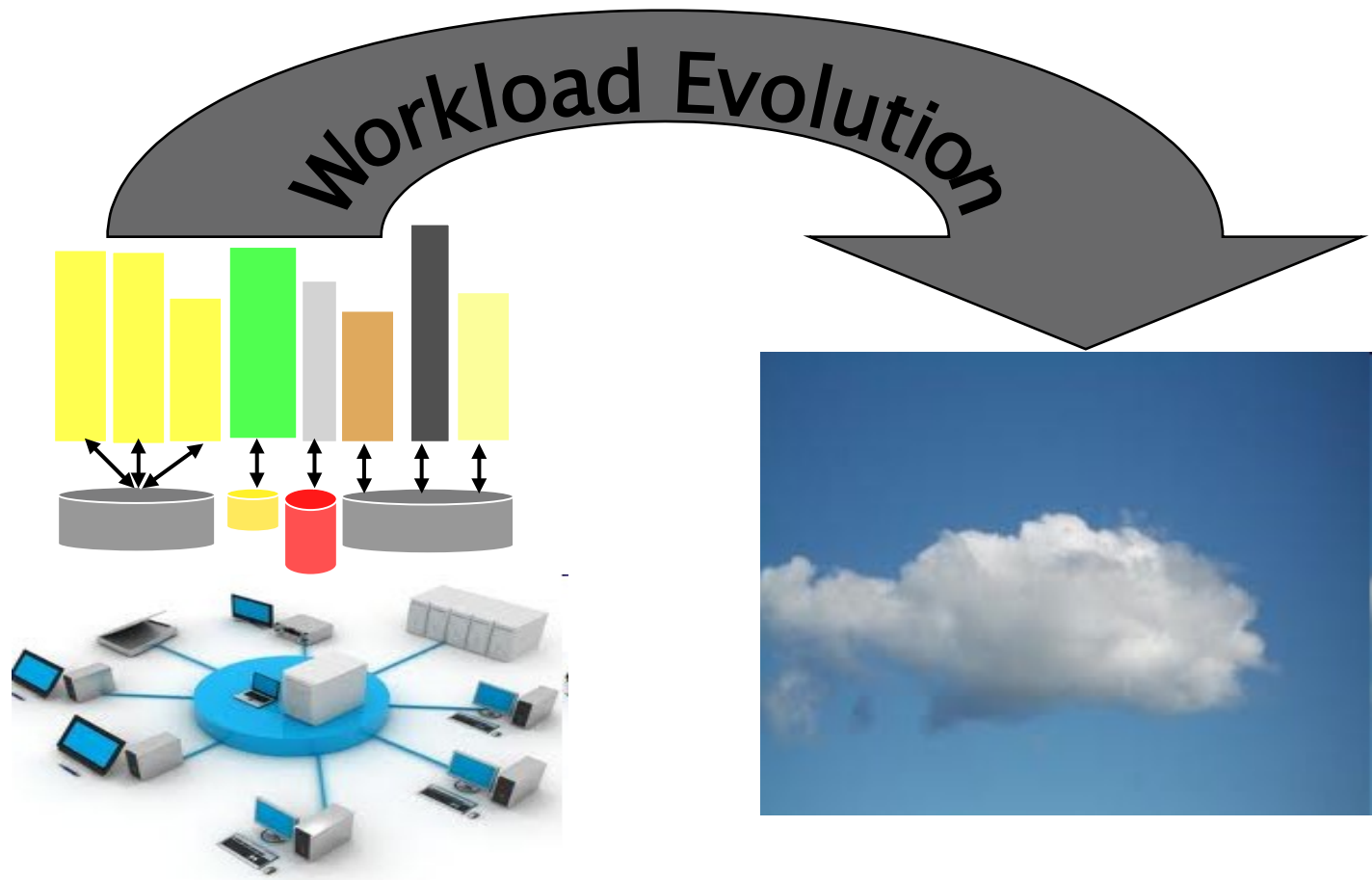
**Support heterogeneous infrastructures**

**Integrated monitoring & metering**

**High availability and efficiency**

- Requirement #1: Self-Service Portal
- Requirement #2: Service Catalogue driven
- Requirement #3: Automated Provisioning
- Requirement #4: Complex Topology Creation & Deployment
- Requirement #5: Platform/Virtualization Abstraction
- Requirement #6: Usage Metering & Accounting for chargeback
- Requirement #7: Multi-tenancy: Assuring 'Service' and Tenant Isolation
- Requirement #8: Provides Security and Privacy
- Requirement #9: Connect, manage and secure hybrid clouds
- Requirement #10: Built upon Open Standards
- Requirement #11: Quality of Service Management

# Making the Transition?



# Infrastructure questions

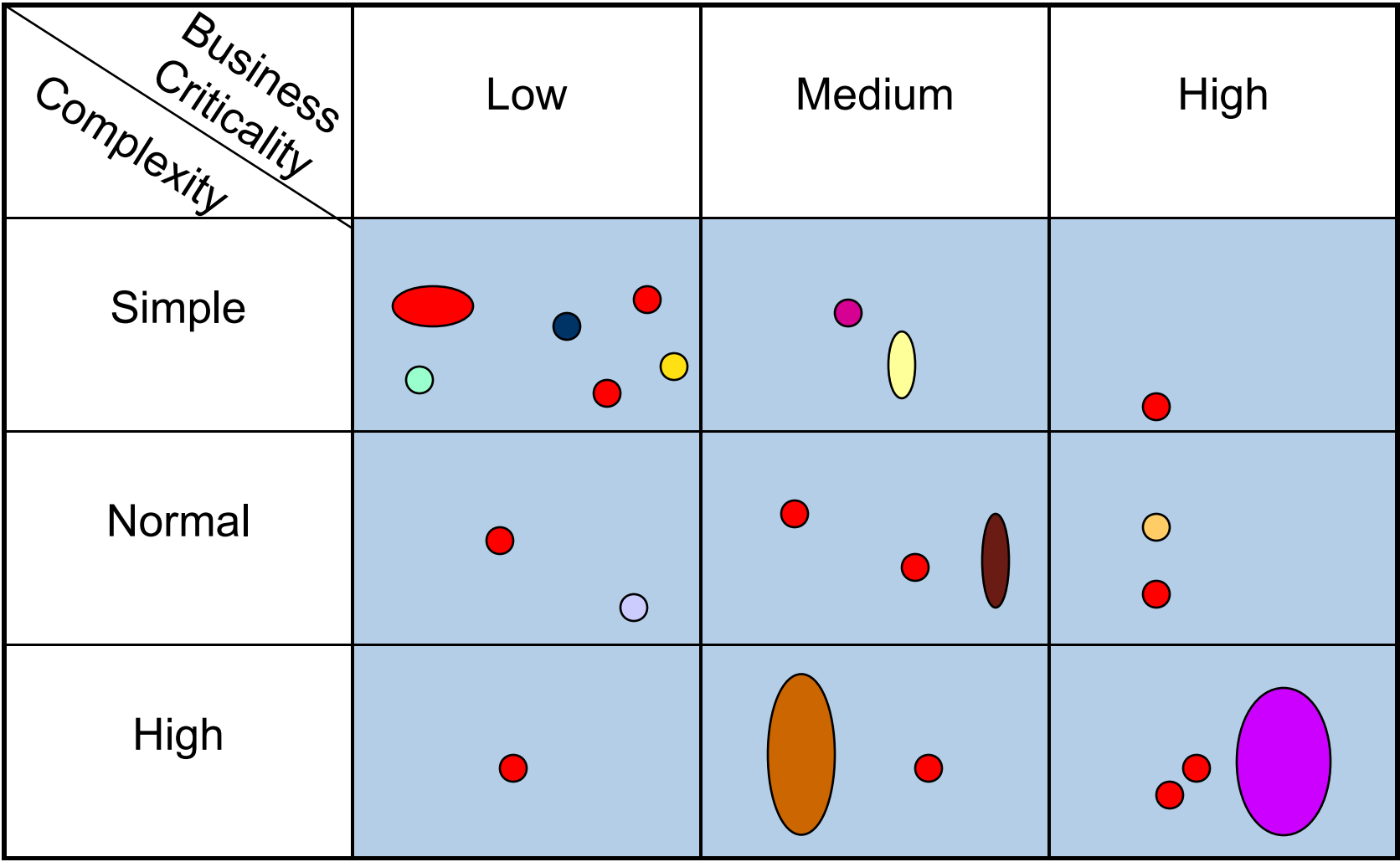
*For a given work load ...*

1. Quality of service required
2. Throughput required
3. Application affinities
4. Security considerations
5. Integration points
6. Costs and value
7. Skills requirements and opportunities
8. Operational tooling
9. Experience and strategy
10. Risks and opportunities

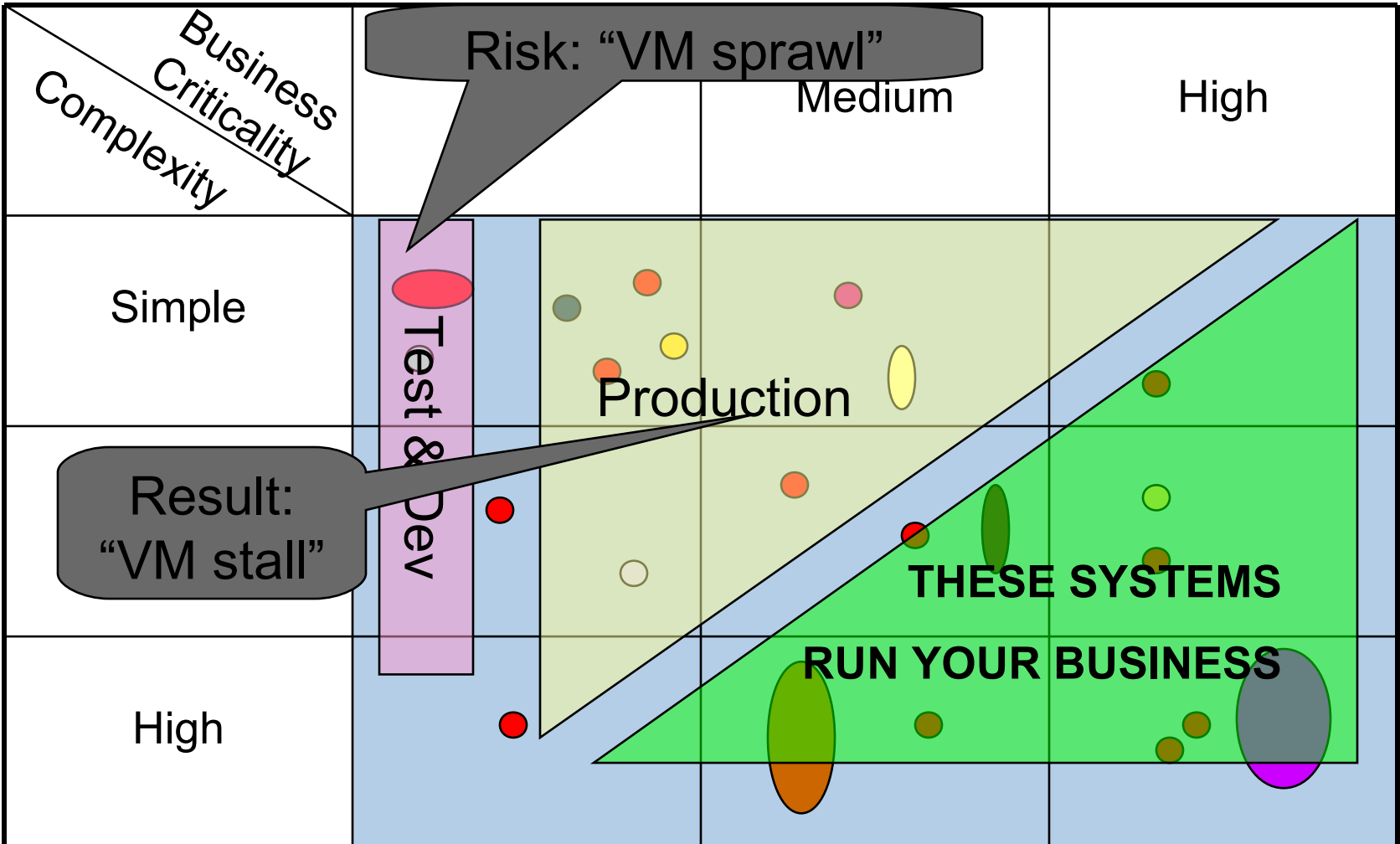




# Workload Map



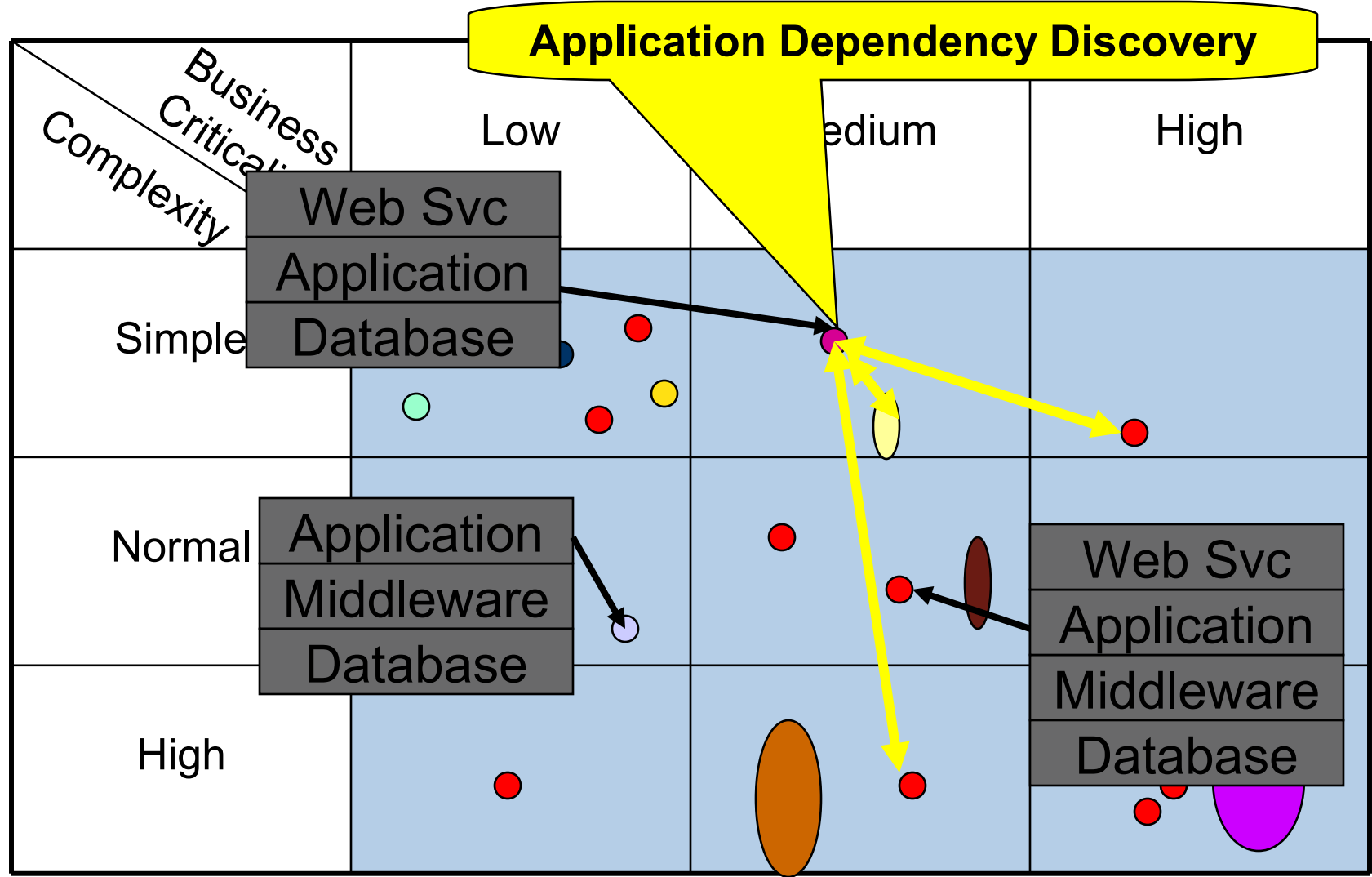
# Using x86 Virtualisation – what happens?



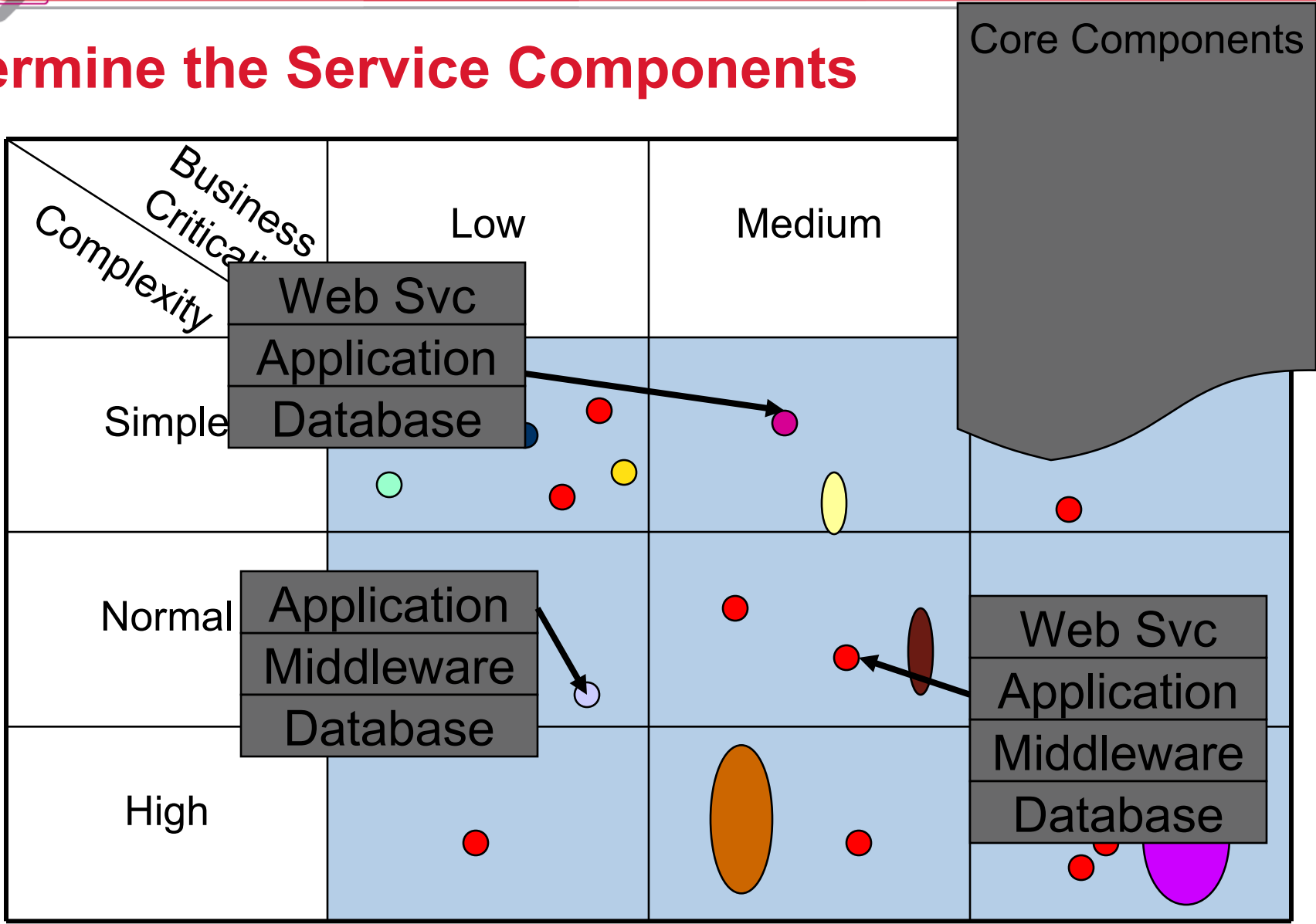




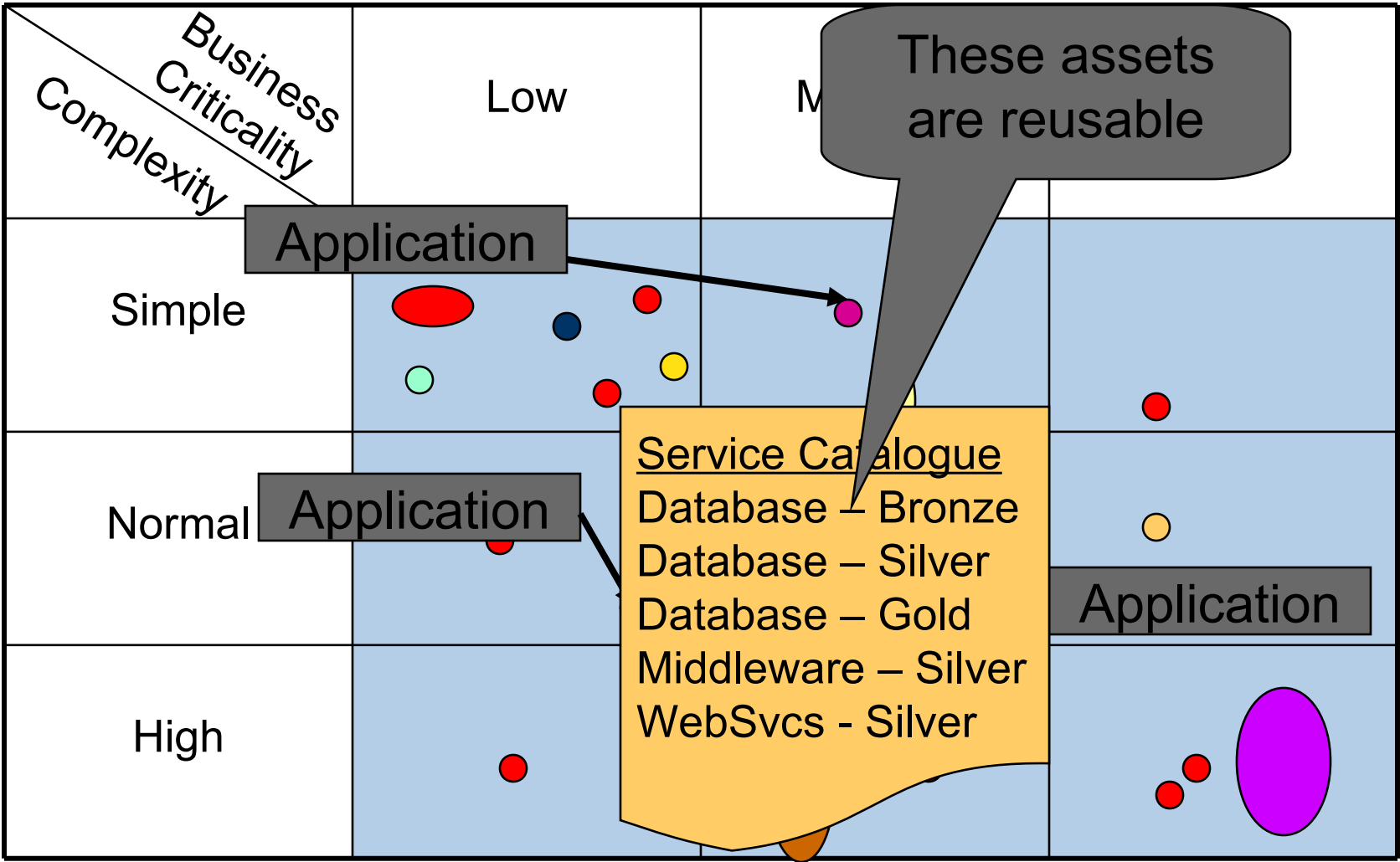
# Workload Decomposition



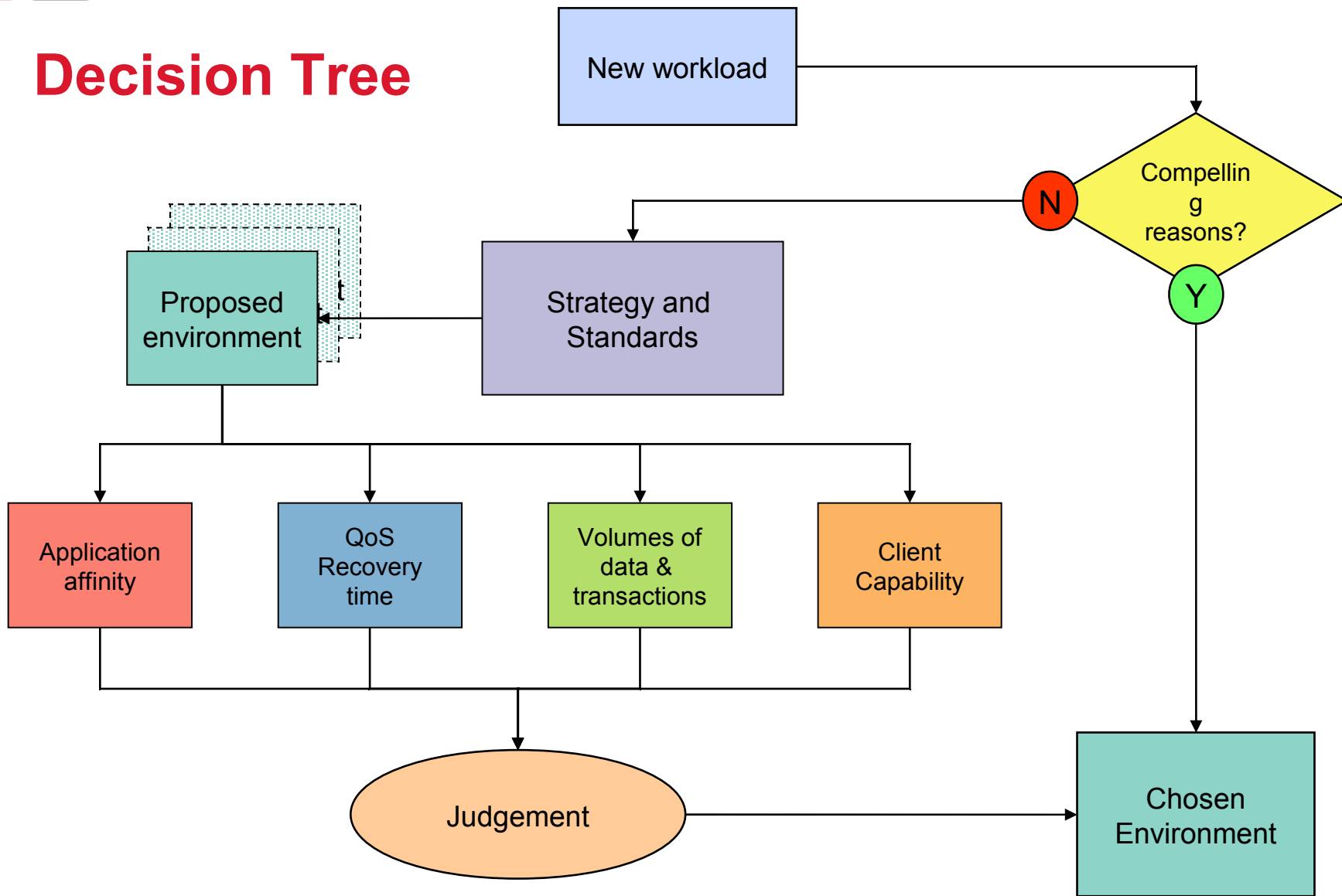
# Determine the Service Components



# Define the Service Catalogue

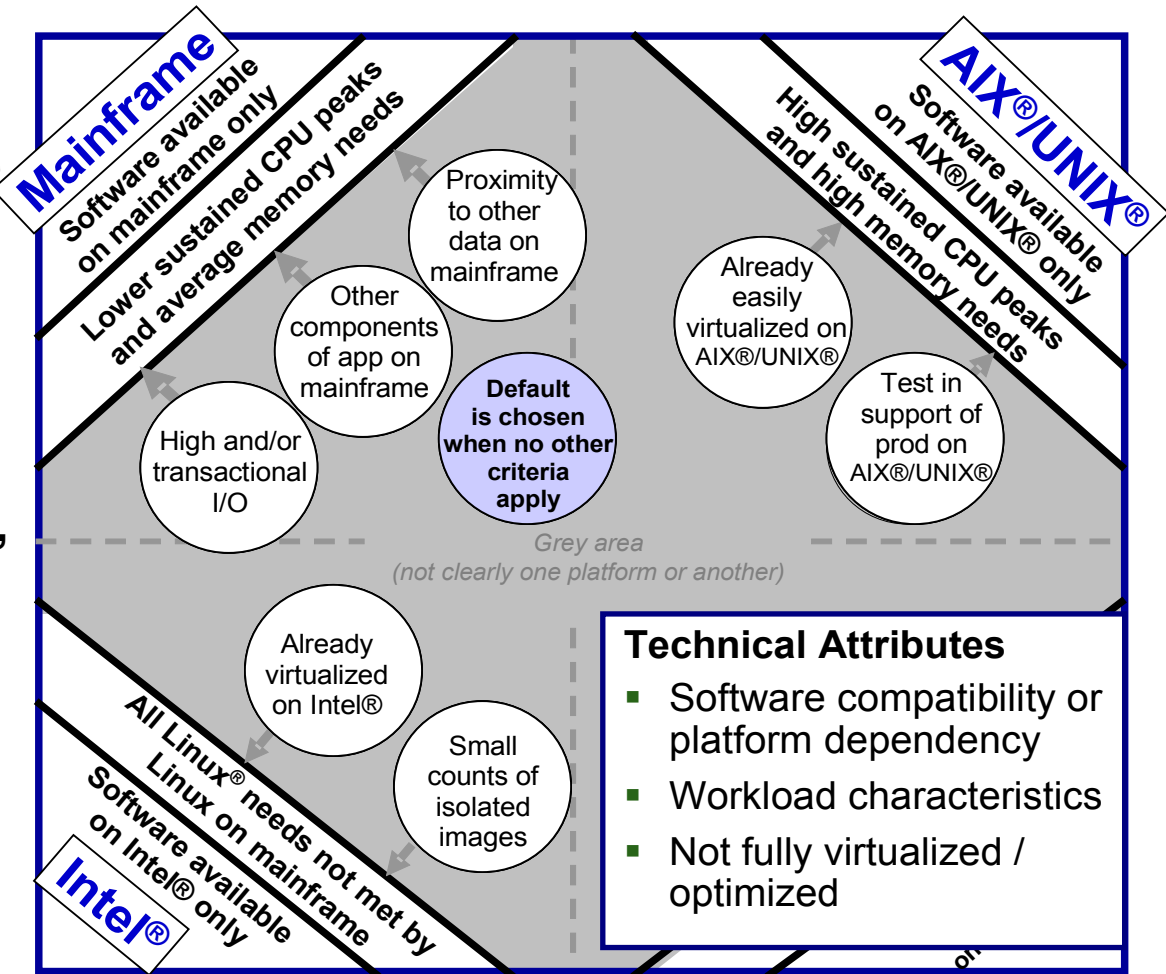


# Decision Tree

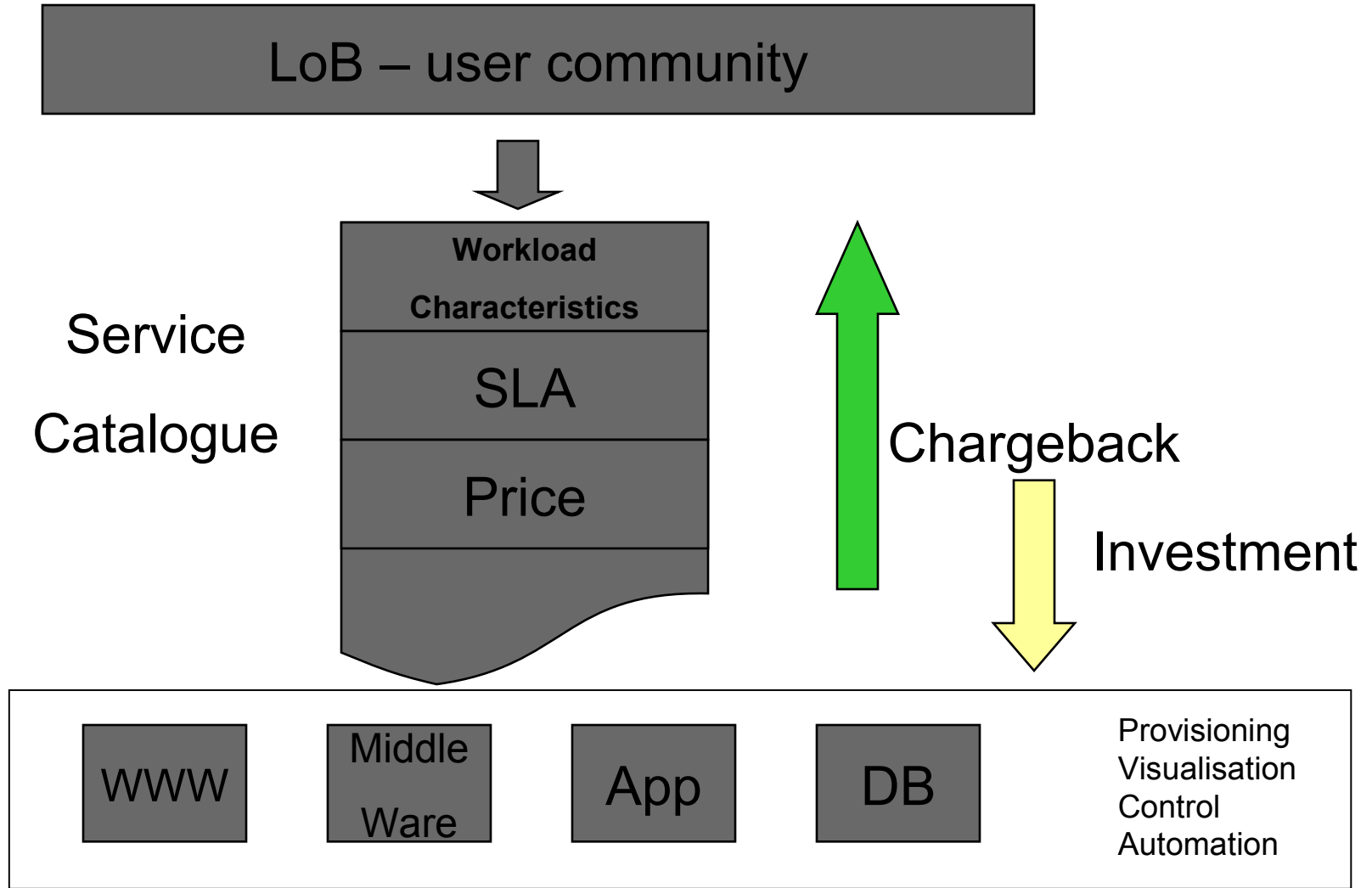


# Each Workload is Evaluated for Suitability Based on Technical Attributes

- Fit for Purpose
- Workloads matched to platform: fit for purpose
- Consider compatibility, performance, costs
- Priority Workloads for z Virtualization:
- **WebSphere®**, **Domino®**, **DB2 Universal Database®**, **WebSphere MQ®**
- Selected tools: **Tivoli®**, **WebSphere®** and internally developed

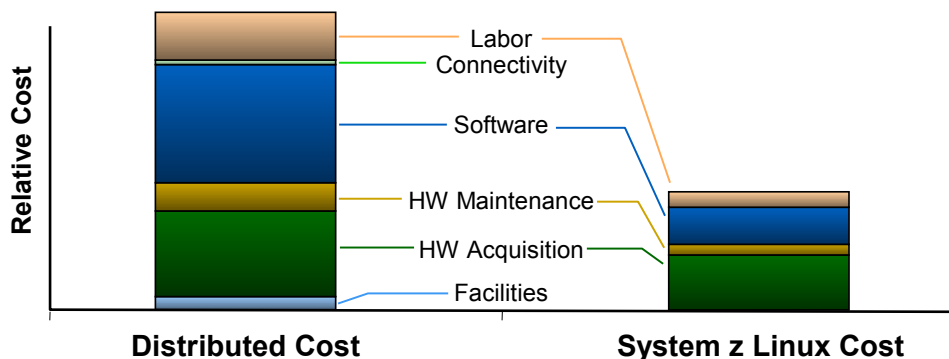


# Right Workload / Right Platform / Right Financial Model

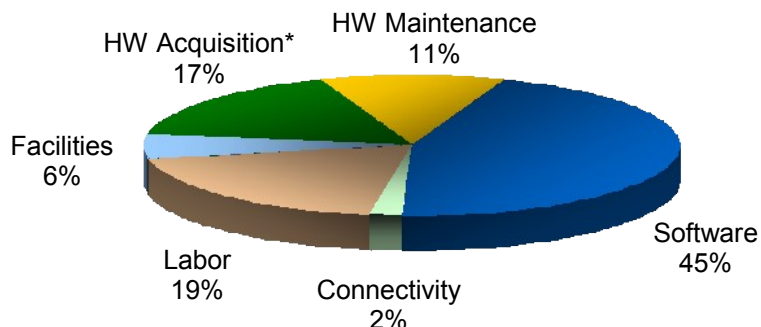


# Client View of TCO Comparison for Similar Distributed Workload vs. System z Linux results in Potential 60-75% Gross Costs Savings / 5 yrs

## Operating Cost: Distributed vs. Mainframe



## Potential Savings: Categories as a % of Gross Savings



\* HW Acquisition compares server/disk refresh of distributed environment to the cost of acquiring new mainframes/storage

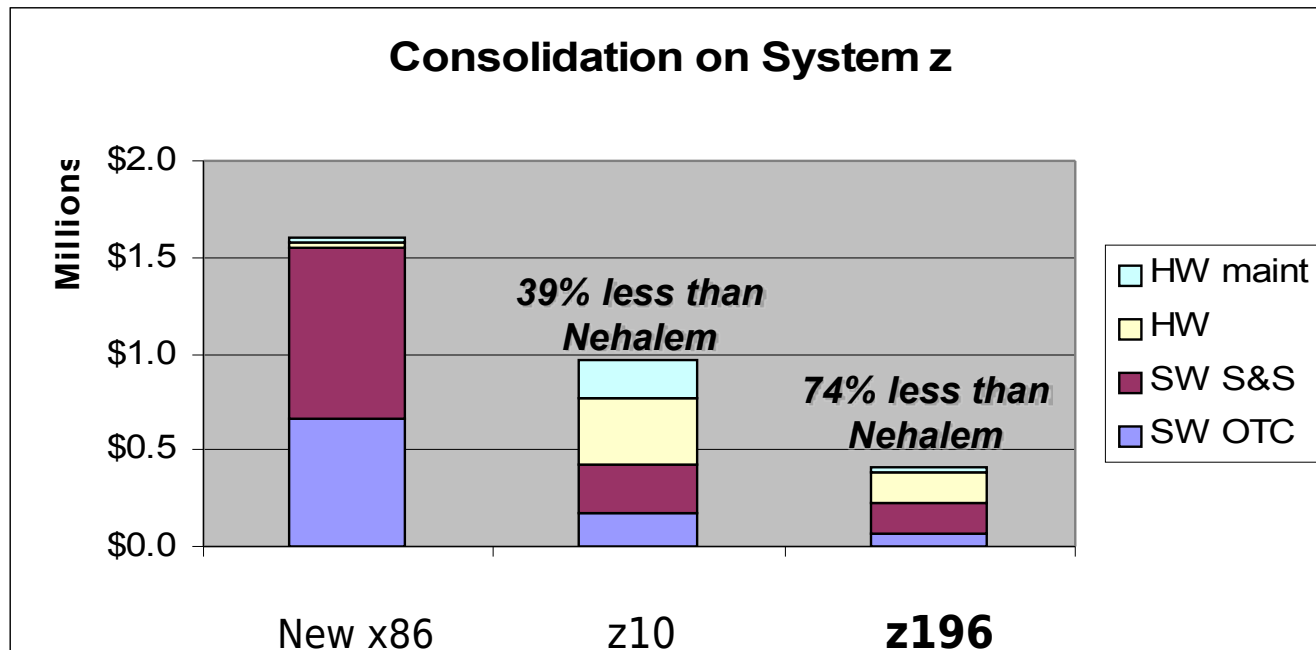
## Dramatic Simplification

Unit	Distributed	System z Linux	% Reduction
Software Licenses	26,700	1,800	93%
Ports	31,300	960	97%
Cables	19,500	700	96%
Physical Network Connections	15,700	7,000	55%

# The Most Efficient Platform for Large Scale Consolidation

- Lower acquisition costs of hardware and software vs distributed servers\*
- Less than **\$1.00 per day** per virtual server (TCA)\*
- Reduce floor space by up to 90% compared to distributed servers\*
- Reduce energy consumption by up to 80% compared to distributed servers\*

## Consolidate 40 Oracle server cores onto 2 Linux cores on zEnterprise



\*Distributed server comparison is based on IBM cost modeling of Linux on zEnterprise vs. alternative distributed servers. Given there are multiple factors in this analysis such as utilization rates, application type, local pricing, etc., savings may vary by user.





Q & A

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