From Silos to Services
Infrastructure & Investment Roadmaps to Utility Computing

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Executive Summary

Today, IT is provisioned as **silos**, **not as a utility**

Utility Computing = IT delivered as a set of services

Goal of utility computing is **Business Agility**

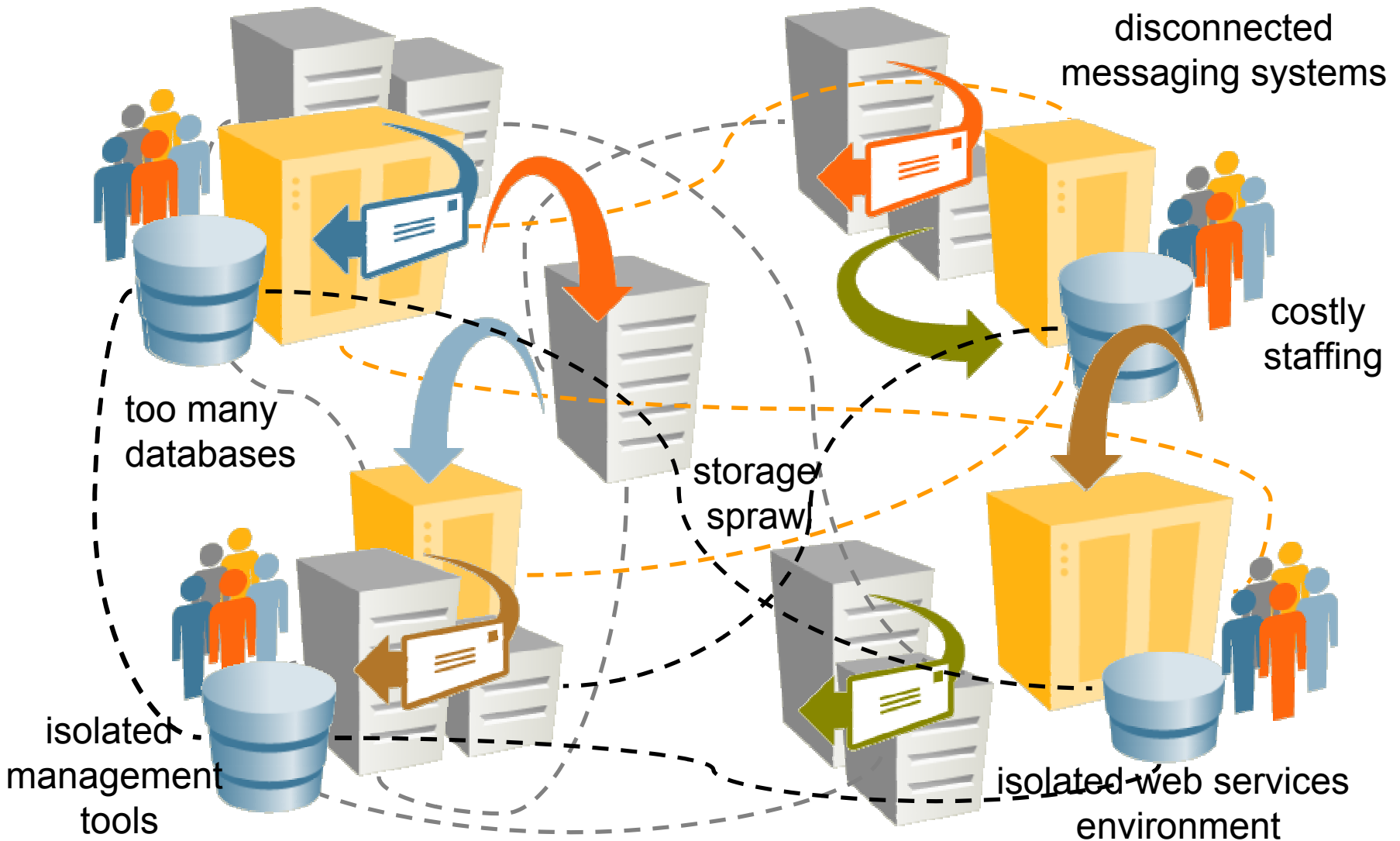Business Agility requires **service**, not silo **architecture**.

The answer requires **more than technology**

Synchronized change across **four key domains**
infrastructure, relationship, process, investment

Today, IT is provisioned as silos … not utility

disconnected messaging systems

costly staffing

too many databases

storage sprawl

isolated management tools

isolated web services environment

Utility Computing

- **Utility Computing ….**
Being able to plug into computing power as you do electricity, paying only for the resources that are consumed

  - CIO Magazine

- **Utilities = deliver services**, not products

- **Power utility** vs. **battery**

  - defined processes (delivery, service restoration, billing, etc)
  - measured quality (availability, 'cleanliness', power levels)
 - defined price (consumption-based. Includes defined processes)
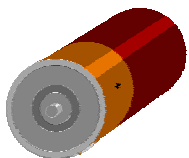
  - product, no services
  - quality inferred by 'brand'
  - defined price (acquisition-based. Cost incurred at acquisition)
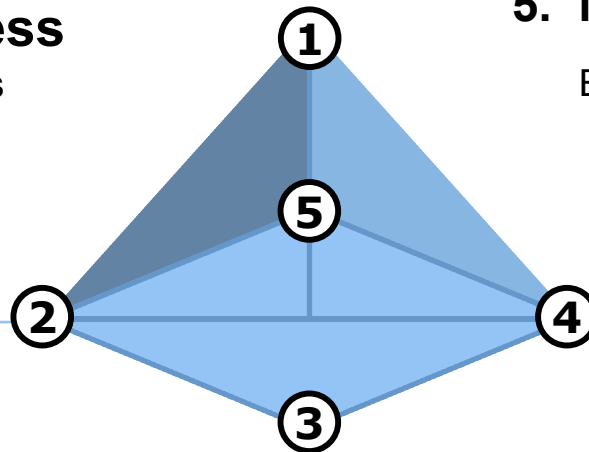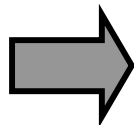
Business Agility
the New Business Driver

• 1. Enable the Business

Realize operational strategies through enablement of the business processes

5. Maximize Agility

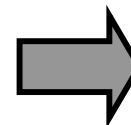Enable the IT environment to adapt to changing business needs
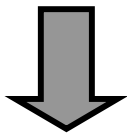
2. Maximize Return

- Return (profit) comes from increasing revenue and/or decreasing costs
- Link operational costs with utilization (i.e., variable, pay-per-use)
- Minimize and/or "smooth" upfront capital investment costs
- Optimize fixed vs. variable costs

3. Maximize Performance
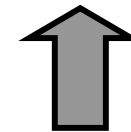
- Improve business process and IT service levels
- Extend service levels across the enterprise
- Ability to change the service as well as deliver it

4. Minimize Risk:

- Risk emanates from regulatory/compliance pressure and business continuity/security issues
- Ensure security and continuity of business operations
- Mitigate operational, organizational, legal and financial risk

new IT architecture required

- "every **change in the business** creates a **change in the IT infrastructure**. With the right infrastructure… anything is possible."

  - Bob Napier, HP CIO

" …. it's time to aggressively drive IT toward a new enterprise architecture that **removes the vertical silos** of automation built up over the years.

Silos are **replaced** over time with a **flexible, modular, standards-based architecture** where business changes can be executed effectively and transactions and information can flow freely."

– Shane Robison, HP CIO

Adaptive Enterprise
synchronizing business changes and IT adaptations

Business Strategy

Business Processes

Application services

Infrastructure

Supply

Demand

Manage & control
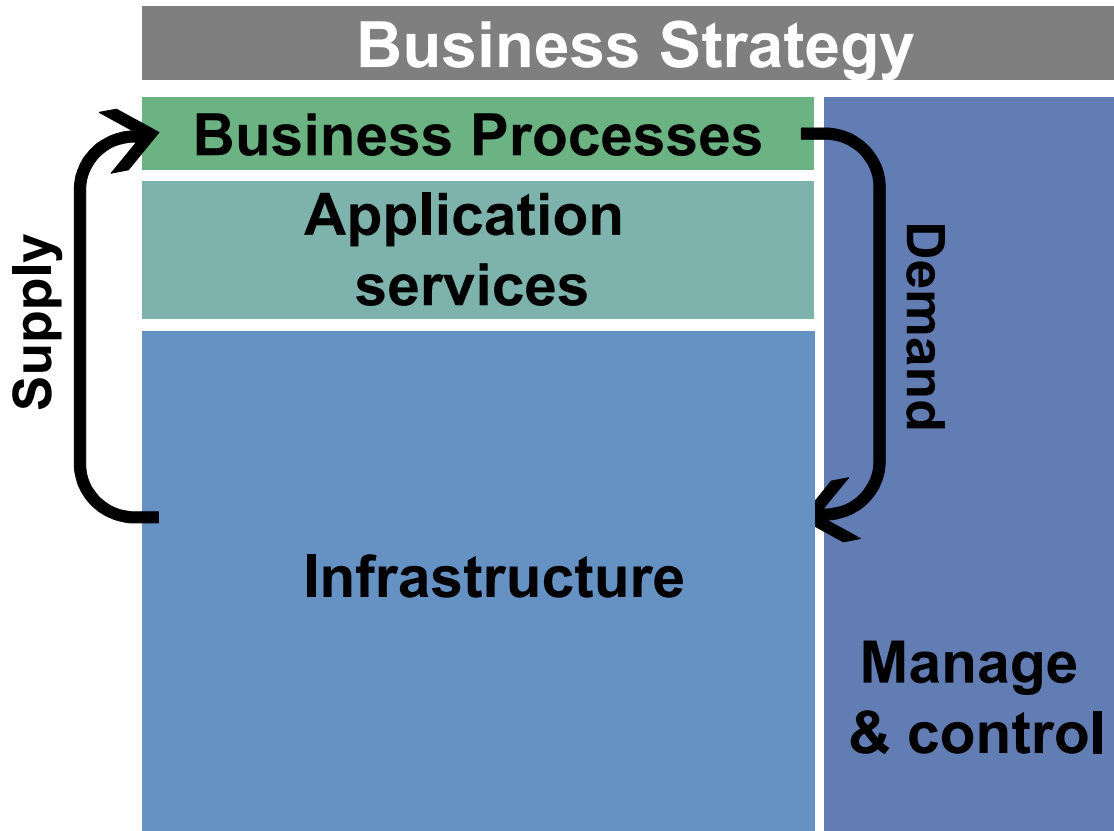
AGILITY

The ability of an organization to (leverage technology in order to) sense environmental change and respond efficiently and effectively to that change.

HP's Darwin Reference Architecture
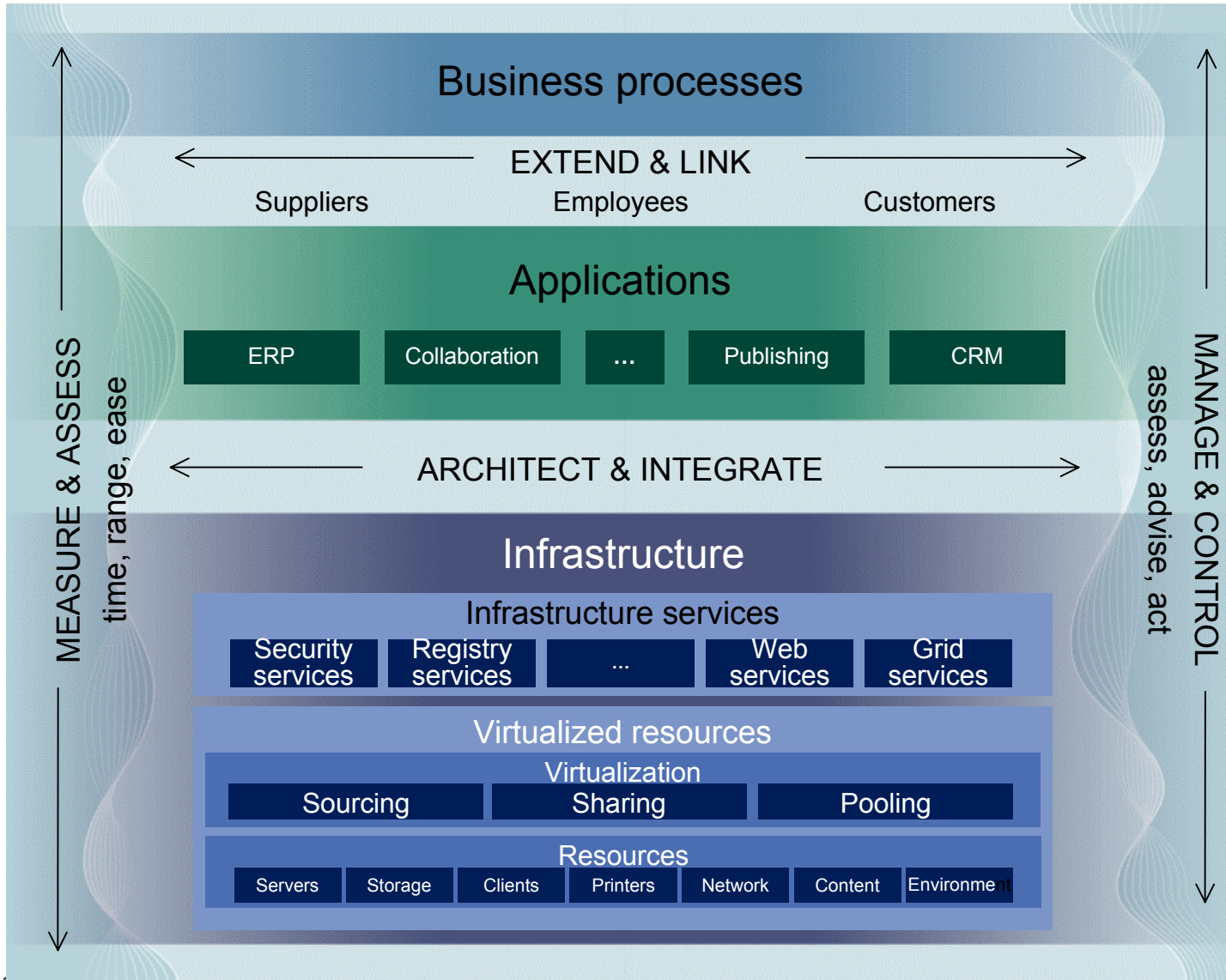
Business processes

← EXTEND & LINK →

Suppliers Employees Customers

Applications

| ERP | Collaboration | ... | Publishing | CRM |

← ARCHITECT & INTEGRATE →

Infrastructure

Infrastructure services

| Security services | Registry services | ... | Web services | Grid services |

Virtualized resources

Virtualization

| Sourcing | Sharing | Pooling |

Resources

| Servers | Storage | Clients | Printers | Network | Content | Environment |

MEASURE & ASSESS — time, range, ease

MANAGE & CONTROL — assess, advise, act

Automated intelligent management

Dynamic resource optimization

Continuous secure operation

Adaptive Enterprise state model

	Tech Focused	Service Focused	Business Focused
Business concerns	cost/efficiency	SLA effectiveness	agility/ process enablement
IT concerns	keep it running	quality of service	business value
Business/IT relationship	tech centric	service centric	business centric
Agility stage	reactive	predictive	proactive
Technology stage	discrete	integrated	virtualized

challenges

From an IT standpoint, **it's like having to rebuild an entire organization**, much like the transformation that manufacturing plants had to make to support just-in-time manufacturing

- Meta Group

The technical issues involved with utility computing are complex enough. But that's nothing compared with **the thicket of organizational and managerial challenges** that face the CIO who wants **to implement a full-blown utility computing model.**

Implementing such a strategy means overhauling the IT department, just for starters. It also involves the **incredibly difficult task of getting departments and functions to share** computing resources and, most important, making sure that **IT functions are properly mapped to business processes**.

- CIO Magazine

we must change

from   **to**

how we architect (infrastructure)	distributed silos → shareable pools of resources disjointed technologies → common adaptive infrastructure
how value is managed (investment)	high cost, low value → lower cost, high value rising fixed costs → costs aligned with revenue cost center → discipline of P&L center cost → value
how we operate IT (process)	reactive, ad hoc → proactive, rationalized process best effort → measured & accountable operations mgr → service manager entirely in-house → strategic sourcing
how we make IT decisions (relationship)	users → customers inward looking → outward looking technology focus → business focus systems skills → listening skills

Mgmt of Change Dependencies

Adaptive, shareable infrastructure
depends on

↓

LOB-IT relationship
(trust & confidence)
earned by

↓

IT ops processes executed credibly
incented by

↓

Variable investment models

silos

IT as Utility

From Silos to Services
from many silos, evolve an adaptive infrastructure

Adaptive, shareable infrastructure depends on

↓

LOB-IT relationship (trust & confidence) **earned by**

↓

IT ops processes executed credibly **incented by**

↓

Variable investment models

Infrastructure capability maturity model →

infrastructure

Relationship capability maturity model →

LOB-IT relationship

IT Op Process capability maturity model →

IT Ops process - ITSM

IT Investment capability maturity model →

Variable IT investment

From Silos to Services
synchronized change across four domains

Adaptive, shareable infrastructure depends on

LOB-IT relationship (trust & confidence) earned by

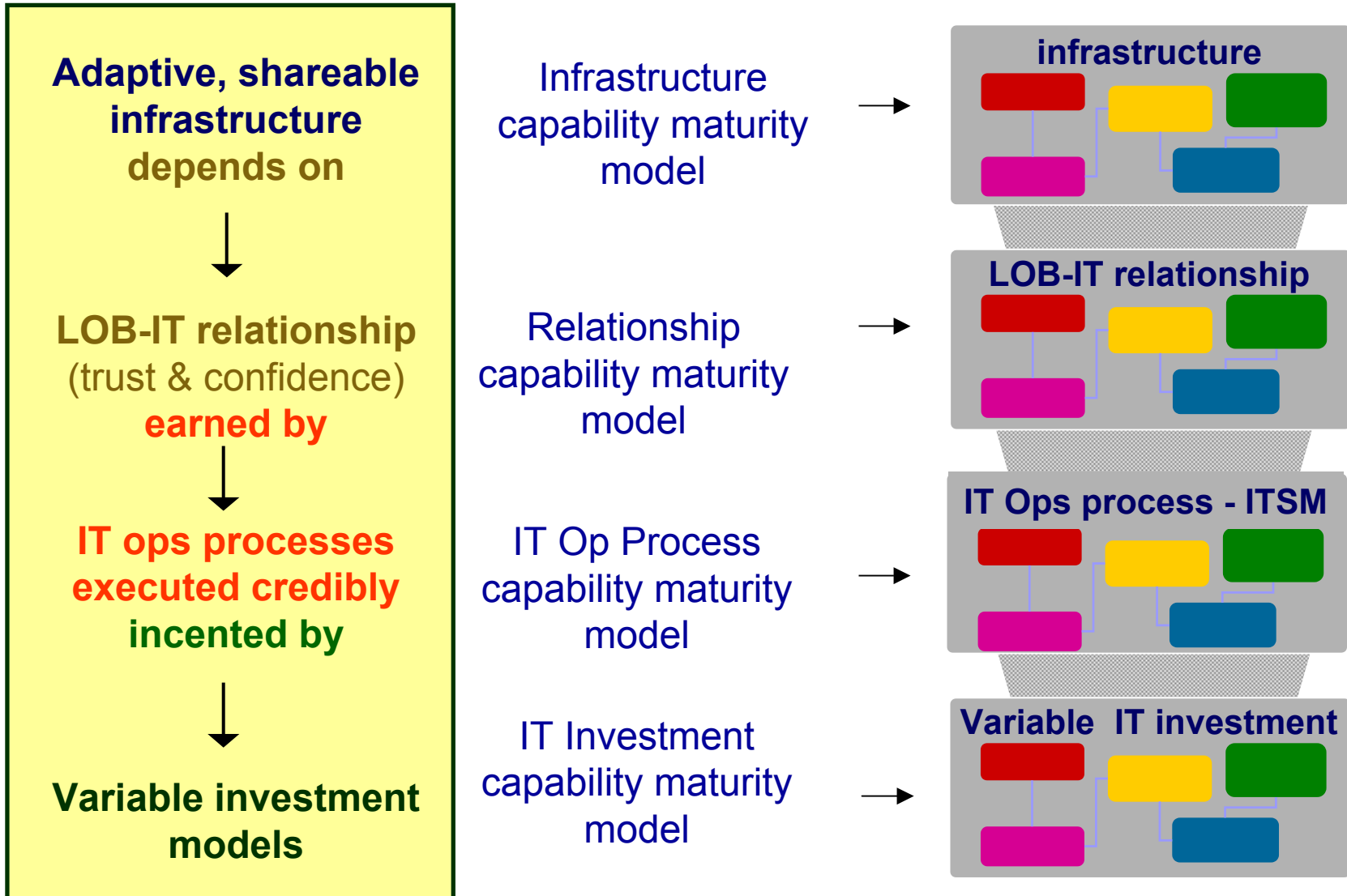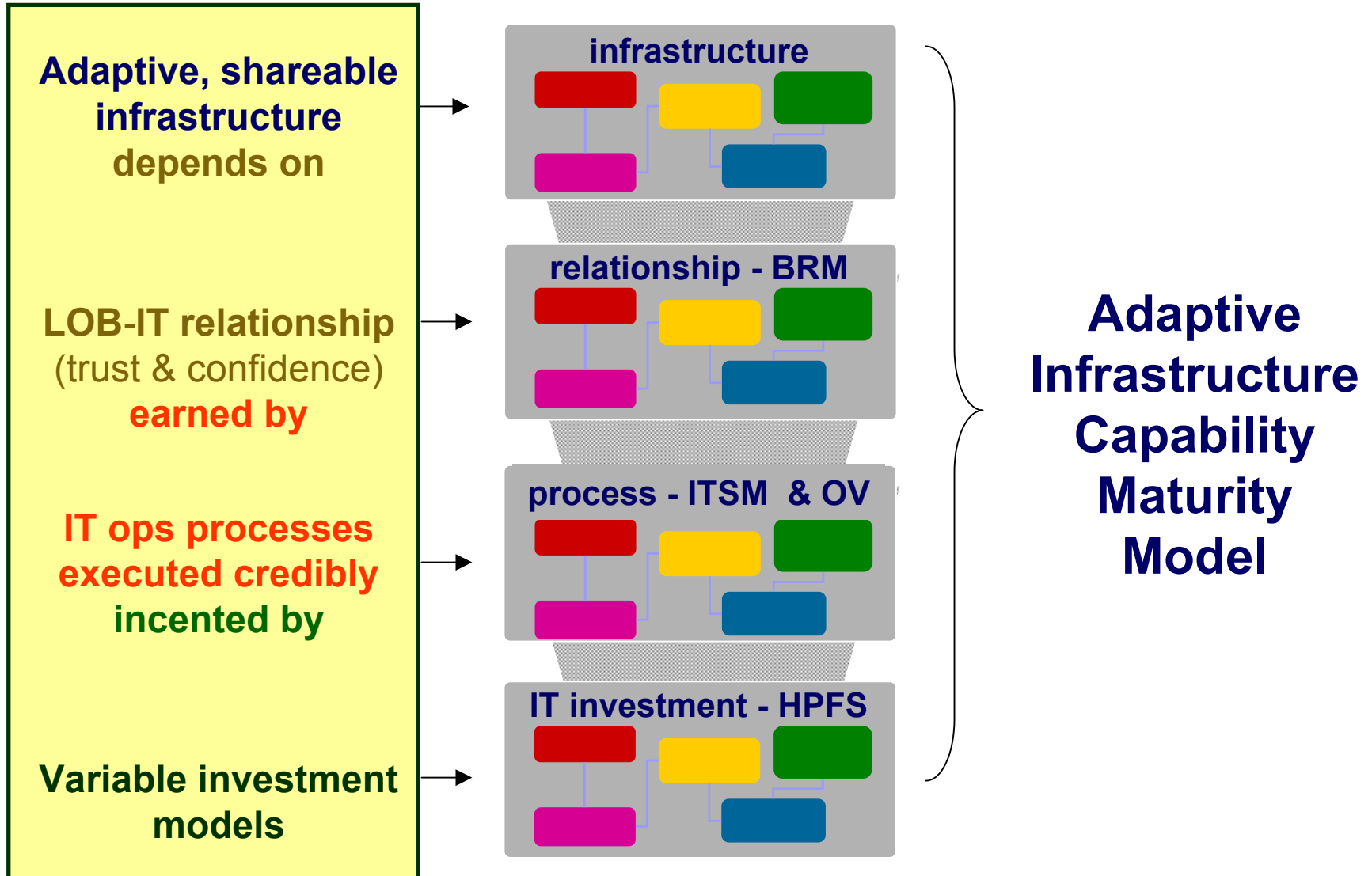**IT ops processes executed credibly** incented by

Variable investment models

infrastructure

relationship - BRM

process - ITSM & OV

IT investment - HPFS

Adaptive Infrastructure Capability Maturity Model

Adaptive Infrastructure Capability Maturity Model

infrastructure

relationship - BRM

process - ITSM & OV

IT investment - HPFS
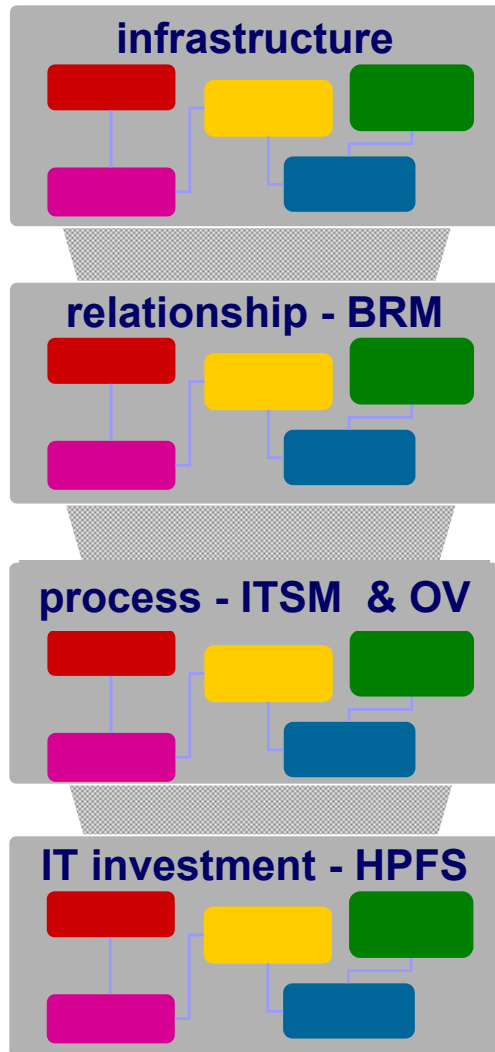
transforming infrastructure and technical architectures already deployed

into a new technical architecture, organized by function, delivered as services,

rather than application, technology, or organizational silos

From Silos to Services
conference sessions

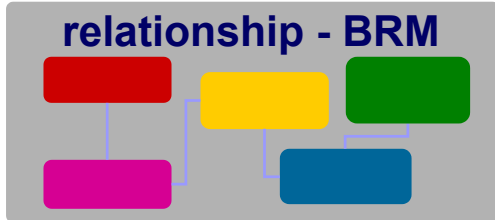**Adaptive, shareable infrastructure** depends on

infrastructure

conference session 1117

LOB-IT relationship (trust & confidence) earned by

relationship - BRM

conference session 1119

IT ops processes executed credibly incented by

process - ITSM & OV

conference session 1120

Variable investment models

variable IT investment
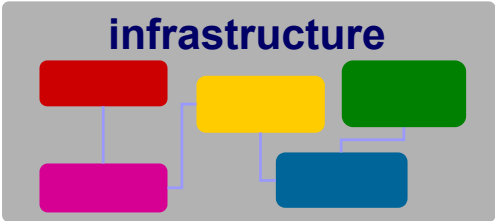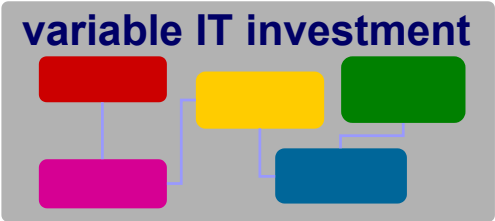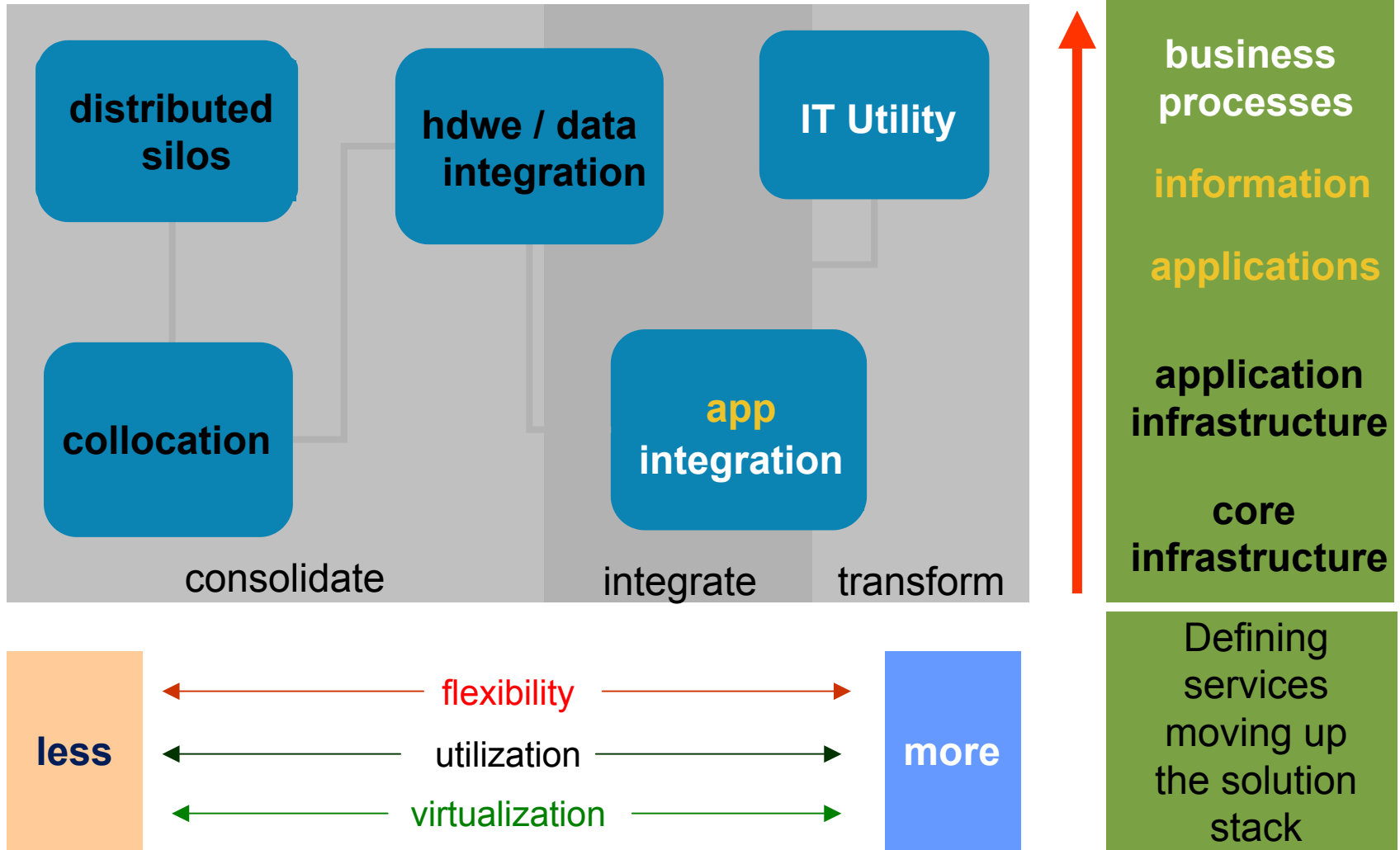
conference session 1117

AICMM model

conference session 1121

infrastructure capability maturity model

distributed silos

hdwe / data integration

IT Utility

collocation

app integration

consolidate

integrate

transform

business processes

information

applications

application infrastructure

core infrastructure

less ← flexibility → more

less ← utilization → more

less ← virtualization → more

Defining services moving up the solution stack

Adaptive Enterprise business value

☐ business agility and time-to-market
☐ improved service levels
■ operating & cost savings

				100
				80
				60
				40
				20
				0

| silos | collocation | hdwe / data integration | app integration | IT utility |
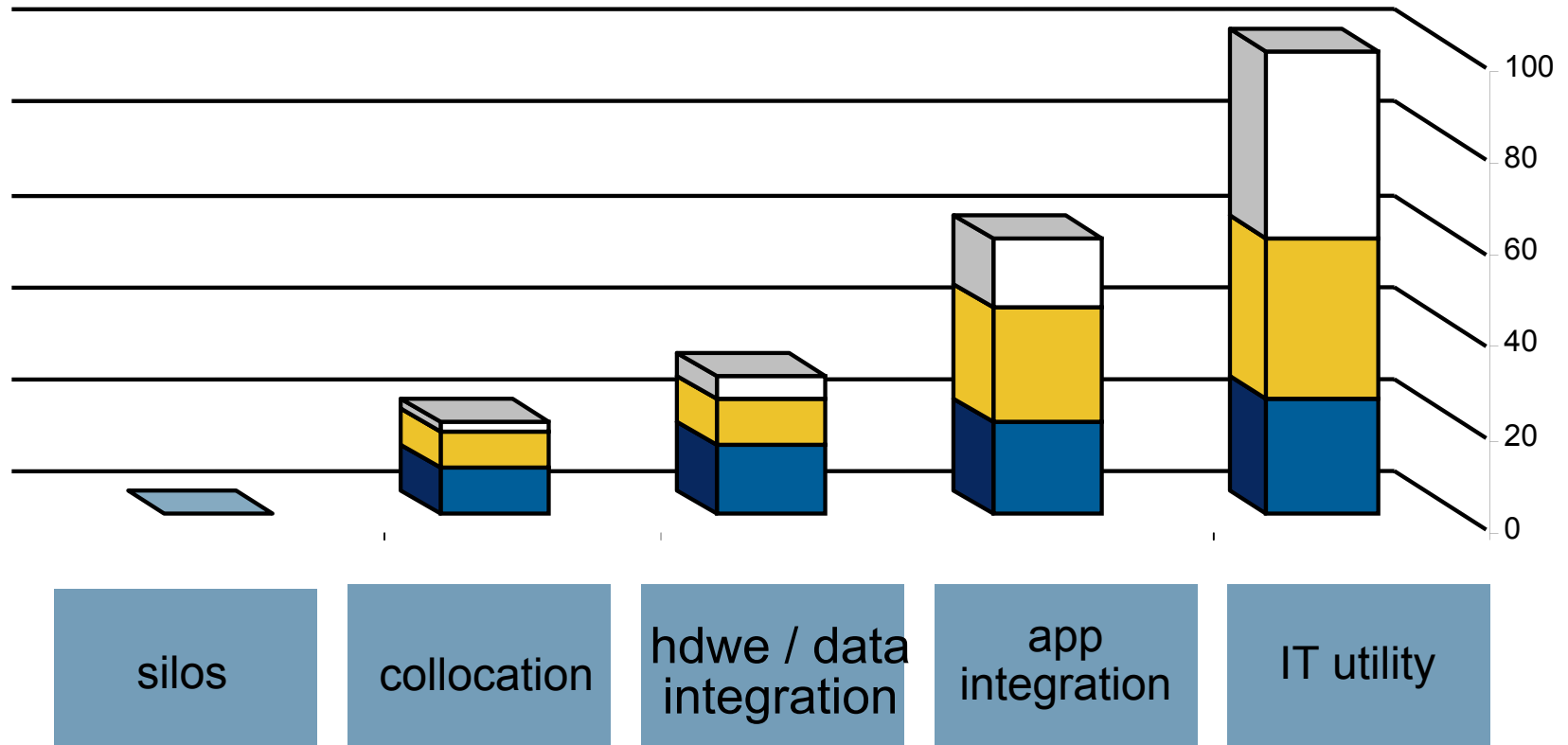
architectural design principles for building services

simplification

- Reduce number of elements
- Eliminate customization
- Automate change

+

standardization

- Use standard technologies and interfaces
- Adopt common enterprise architecture
- Implement standard processes

+

modularity

- Break down monolithic structures
- Create reusable components
- Implement logical architectures

+

integration

- Link business and IT
- Connect applications and business processes within and outside the enterprise

infrastructure capability maturity model

distributed silos

hardware / data integration

IT utility

collocation
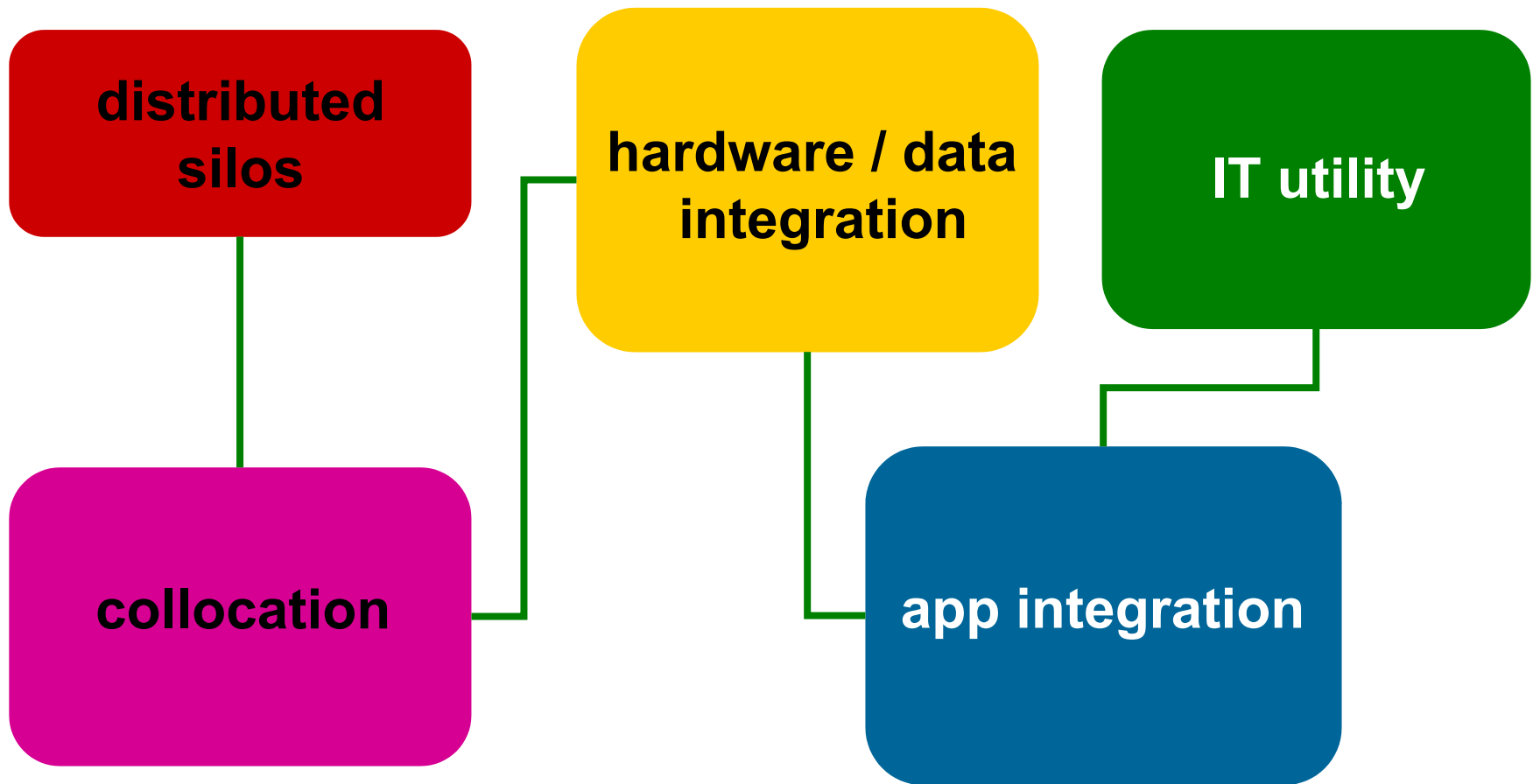
app integration

consolidate ——————— integrate ——— transform

infrastructure capability maturity model

distributed silos

collocation
- physical security
- hdwe relocation
- disaster recovery
- centralized mgmt
- network backups
- WAN optimization

- **seeking to leverage / optimize**
  - physical collocation: real estate
  - logical collocation: daily ops mgmt
  - staff utilization
  - core operations processes

- **technologies, tools, processes**
  - centralized mgmt processes & tools
  - wide area networking
  - Disaster Recovery fail-over
  - help desk, change mgmt, config mgmt

- **services**
 - core daily operations
  - network services
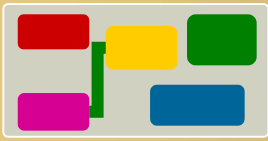
infrastructure capability maturity model

collocation

hardware/ data integration

- reduce qty of servers
- centralize storage
- selective virtualization
  - partitions, SANs
- integrated support
- DB consolidation

- **seeking to leverage / optimize**
  - unused hardware capacity
  - software licenses
  - standardized operational processes
  - staff utilization

- **technologies, tools, processes**
  - server hardware partitioning (nPars)
  - software or virtual partitioning (vPars)
  - resource partitioning (rPars)
  - fabric switches / SANs
  - test / QA / release to prod. processes

- **services**
  - data management services
  - provisioning servers / storage
  - test / dev / promote-to-prod services
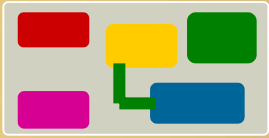
infrastructure capability maturity model

hardware / data integration

app integration

- DB rationalize
- app standardization
- EAI
- Bus. Continuity
- virtualized resources
  - Utility Data Center
  - grid computing
- policy based mgmt
- Web Svcs value chain

- **seeking to leverage / optimize**
  - standardize apps, business processes
  - standardize, unified data models
  - business processes within firewall
  - software licensing

- **technologies, tools, processes**
  - information bus / star
  - .Net / J2EE

- **services**
  - data management services
  - datacenter provisioning
  - web-services within corp firewall

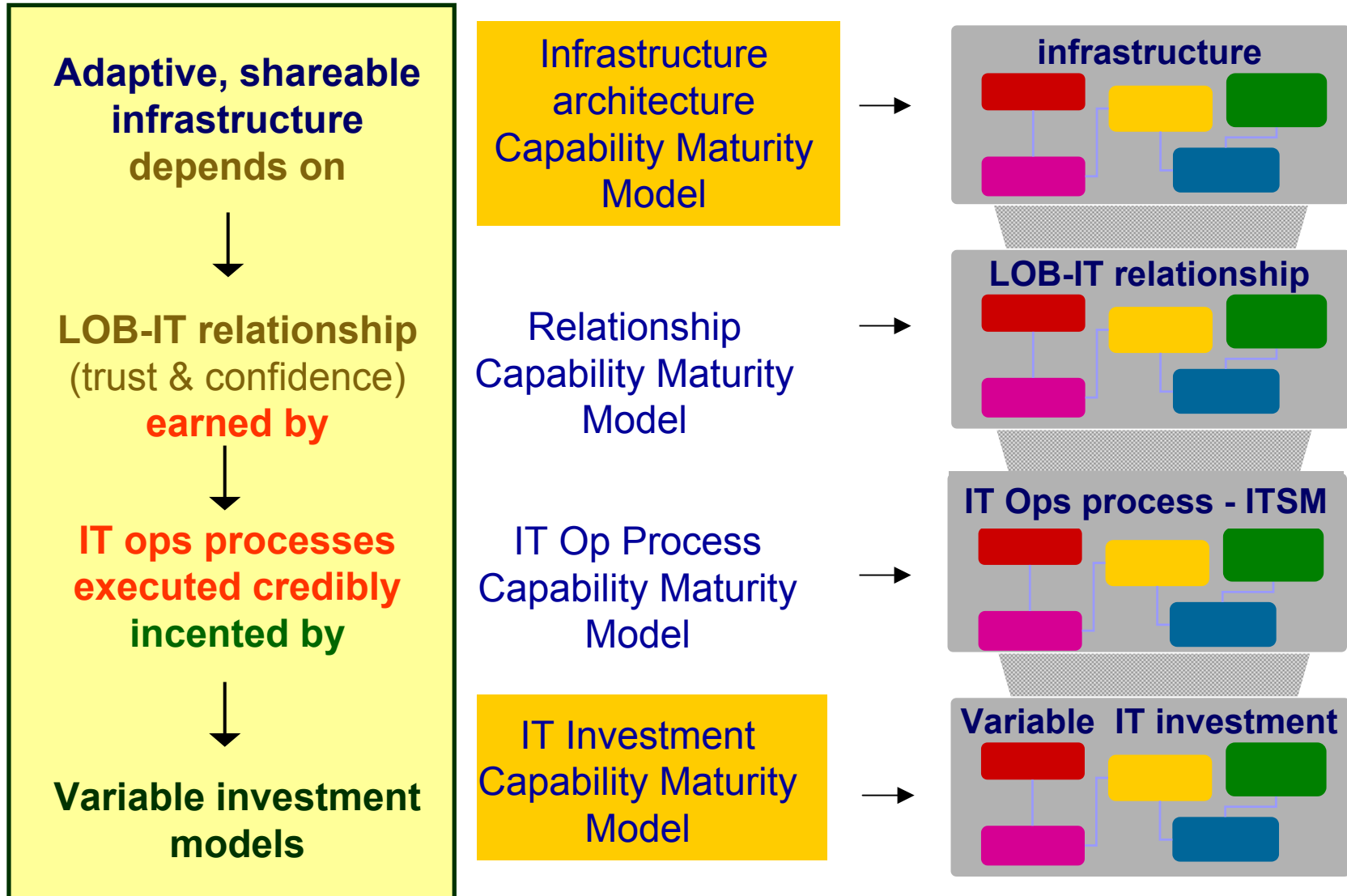# infrastructure capability maturity model

application integration

IT utility
- costs aligned w/ revenue
- on-demand provisioning
- Web Svcs value network
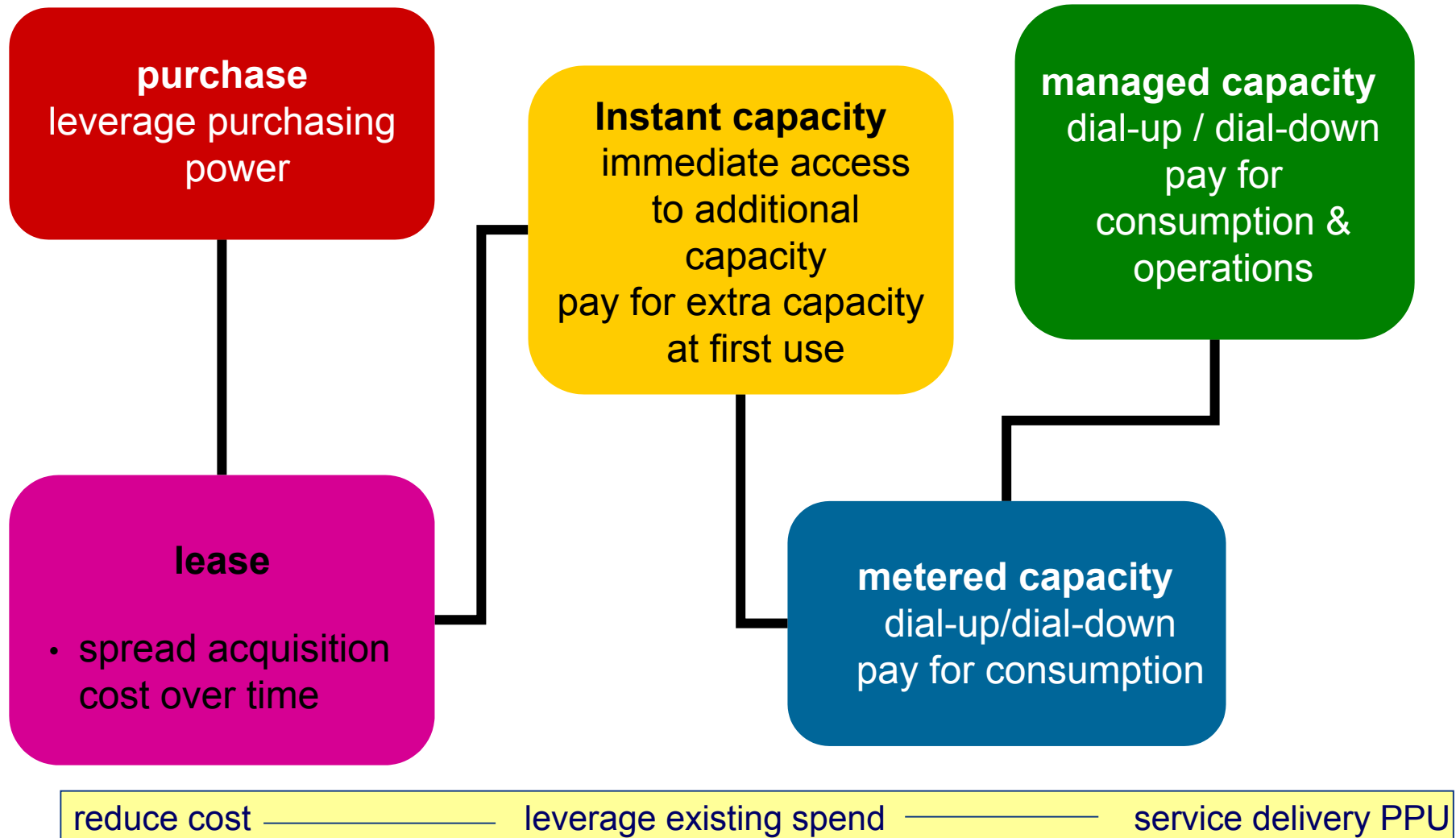- app PPU (ASP)
- strategic sourcing

- **seeking to leverage / optimize**
  - re-usable software components
  - business process across value network
  - competitive business advantage

- **technologies, tools, processes**
  - object databases
  - .Net / J2EE
  - service-oriented architectures

- **services**
  - business-level services
  - industry, external exchanges
  - web-services beyond corp firewall
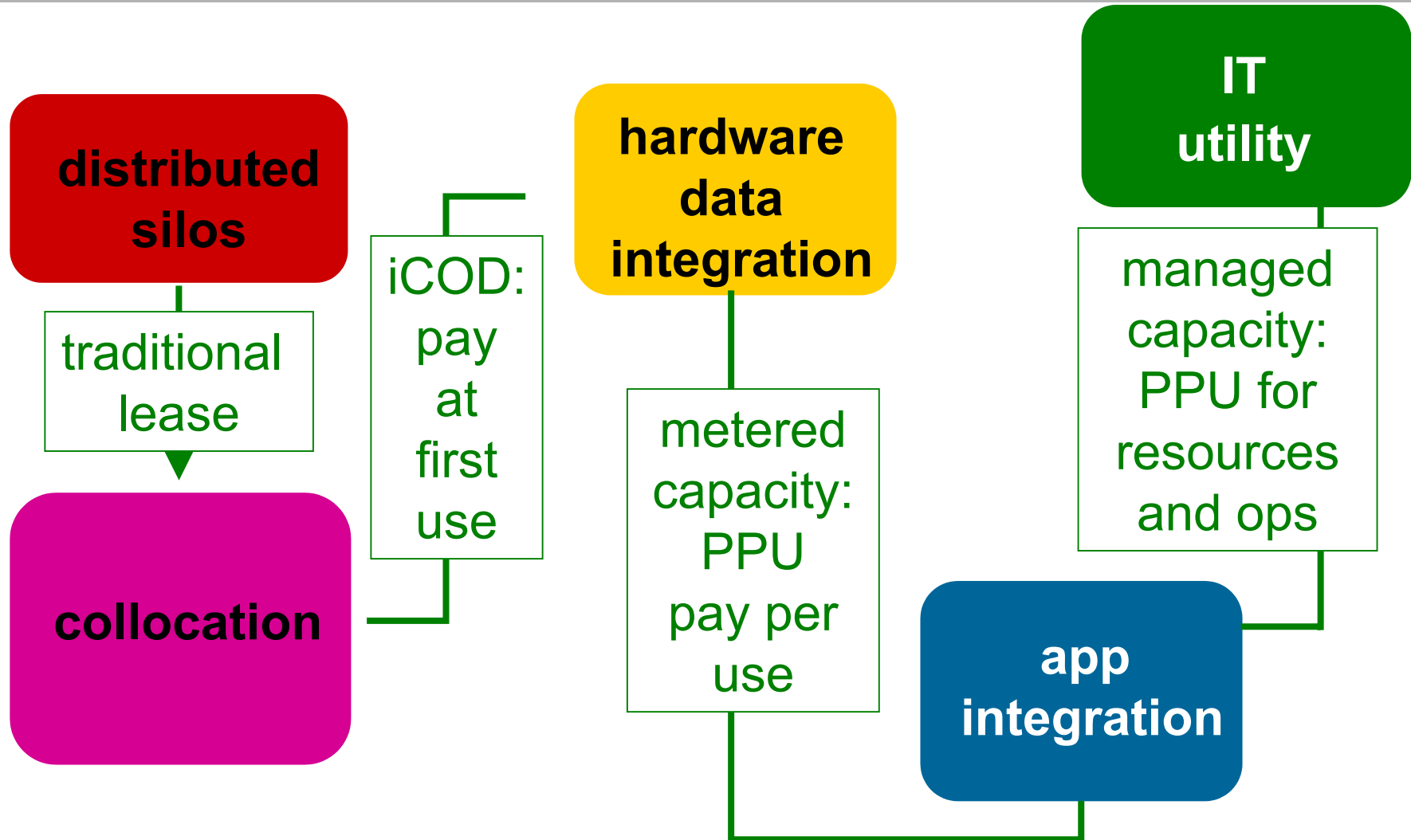
From Silos to Services
from silos, evolve an adaptive infrastructure

Adaptive, shareable infrastructure depends on

↓

LOB-IT relationship (trust & confidence) **earned by**

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IT ops processes executed credibly incented by

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Variable investment models

Infrastructure architecture Capability Maturity Model → **infrastructure**

Relationship Capability Maturity Model → **LOB-IT relationship**

IT Op Process Capability Maturity Model → **IT Ops process - ITSM**

IT Investment Capability Maturity Model → **Variable IT investment**

IT investment capability maturity model

purchase
leverage purchasing power

Instant capacity
immediate access to additional capacity
pay for extra capacity at first use

managed capacity
dial-up / dial-down
pay for consumption & operations

lease
- spread acquisition cost over time

metered capacity
dial-up/dial-down
pay for consumption

reduce cost ———— leverage existing spend ———— service delivery PPU

Incenting change with variable investment models

distributed silos

traditional lease

collocation

iCOD: pay at first use

hardware data integration

metered capacity: PPU pay per use
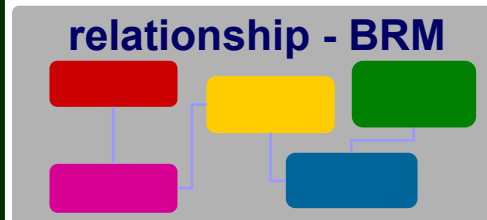
app integration

IT utility

managed capacity: PPU for resources and ops

From Silos to Services
conference sessions

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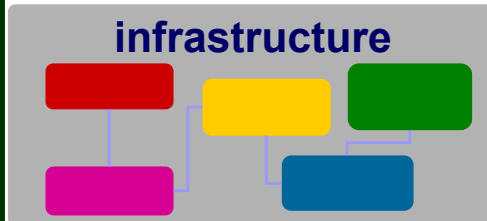
conference session 1117
Tue 3:30

relationship - BRM

conference session 1119
Tue 4:50

process - ITSM & OV

conference session 1120
Wed 10:50

variable IT investment

conference session 1117
Tue 3:30

AICMM model

conference session 1121
Wed 12:10
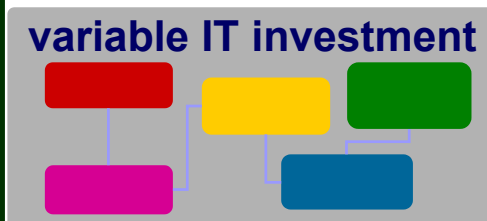
Profiles and Questions

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Thank you

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