Boundaryless Information Flow
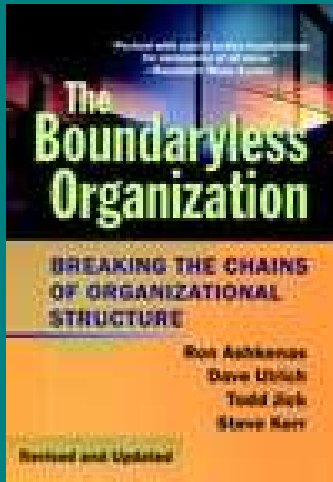
The Business Imperative

Vision

Boundaryless Information Flow
- achieved through global interoperability
- in a secure, reliable and timely manner

The Boundaryless Organization

BREAKING THE CHAINS OF ORGANIZATIONAL STRUCTURE

Ron Ashkenas
Dave Ulrich
Todd Jick
Steve Kerr

Revised and Updated

Boundaryless does not mean there are no boundaries – it means that boundaries are permeable to enable business.

Vision

Boundaryless Information Flow

Creating the concept

- ❑ CIO Forum
  - ■ opened up the business issues
- ❑ Customer Council
  - ■ spearheaded The Interoperable Enterprise workshop and white paper
- ❑ Lead author of the "Boundaryless Organization"
  - ■ validated that we are in tune with industry

Boundaryless Information Flow

Background

- Interoperability - an issue for most organizations
  - A big issue
  - Has many meanings
- Need to understand what is really meant by this requirement
  - Use business scenarios
- Coming up - Our understanding of the interoperability requirement!

Boundaryless
Information Flow

Business Scenarios

- A Business Scenario describes:
  - Business process, application or set of applications
  - Business and technology environment
  - Relevant people and computing components
  - Desired outcome of proper execution
- A good Business Scenario
  - Is "S.M.A.R.T."
  - Enables the supply side to better understand the needs of the buy side
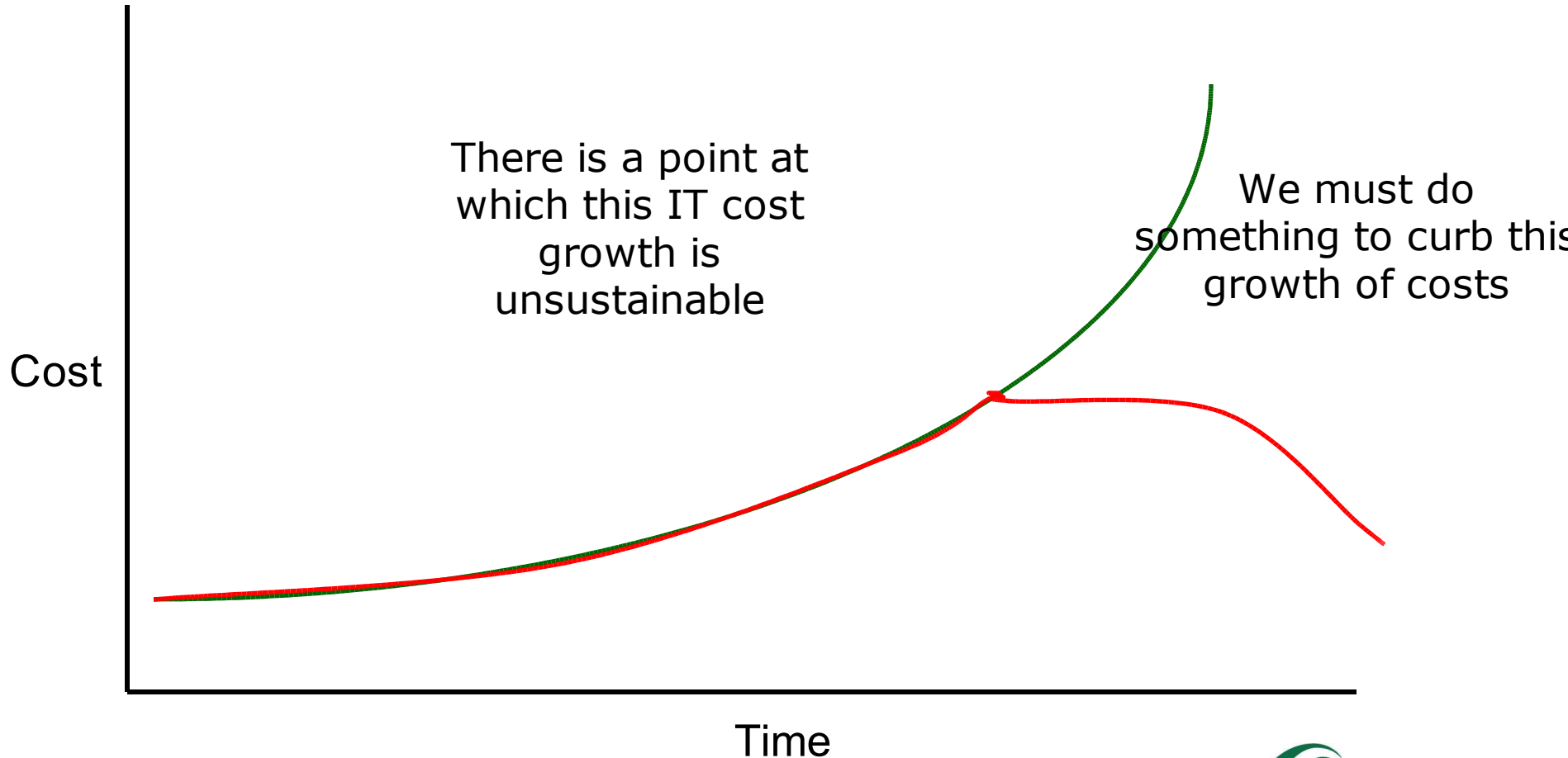 - Support the business case for the vendors

Boundaryless
Information Flow
TM

What Is Meant by Interoperability

- ❑ Working definition of interoperability

    - ▪ The ability of two or more entities or components to *exchange information* and to use the information that has been exchanged *"to meet a defined mission or objective"*

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Pain Points

- ❑ Lack of effectiveness of business operations
- ❑ Lost opportunity to add value to the business
- ❑ Increasing IT costs
- ❑ Lack of effectiveness of IT
- ❑ Reduced management control
- ❑ Increased operational risk

Boundaryless
Information Flow

The Criticality of IT Costs

There is a point at which this IT cost growth is unsustainable

We must do something to curb this growth of costs

Cost

Time

Boundaryless Information Flow

Customer problem statement

❑ "I could run my business better if I could gain operational efficiencies improving
- **the many different business processes of the enterprise**
    - **both internal, and**
    - **spanning the key interactions with suppliers, customers, and partners using**
- **integrated information, and access to that information."**

Source: "The Interoperable Enterprise"
http://www.opengroup.org/cio/iop/index.htm
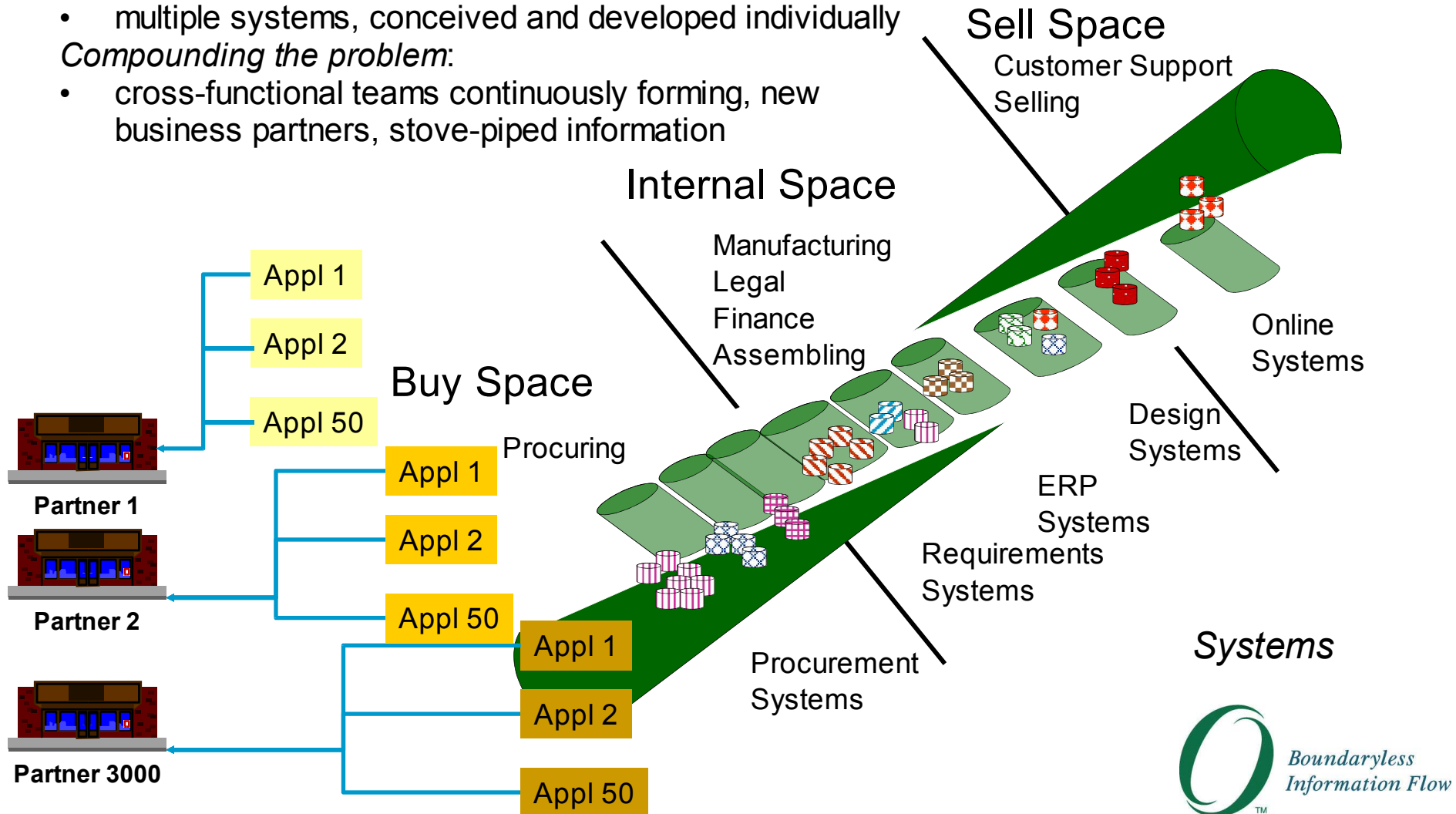
Boundaryless
Information Flow

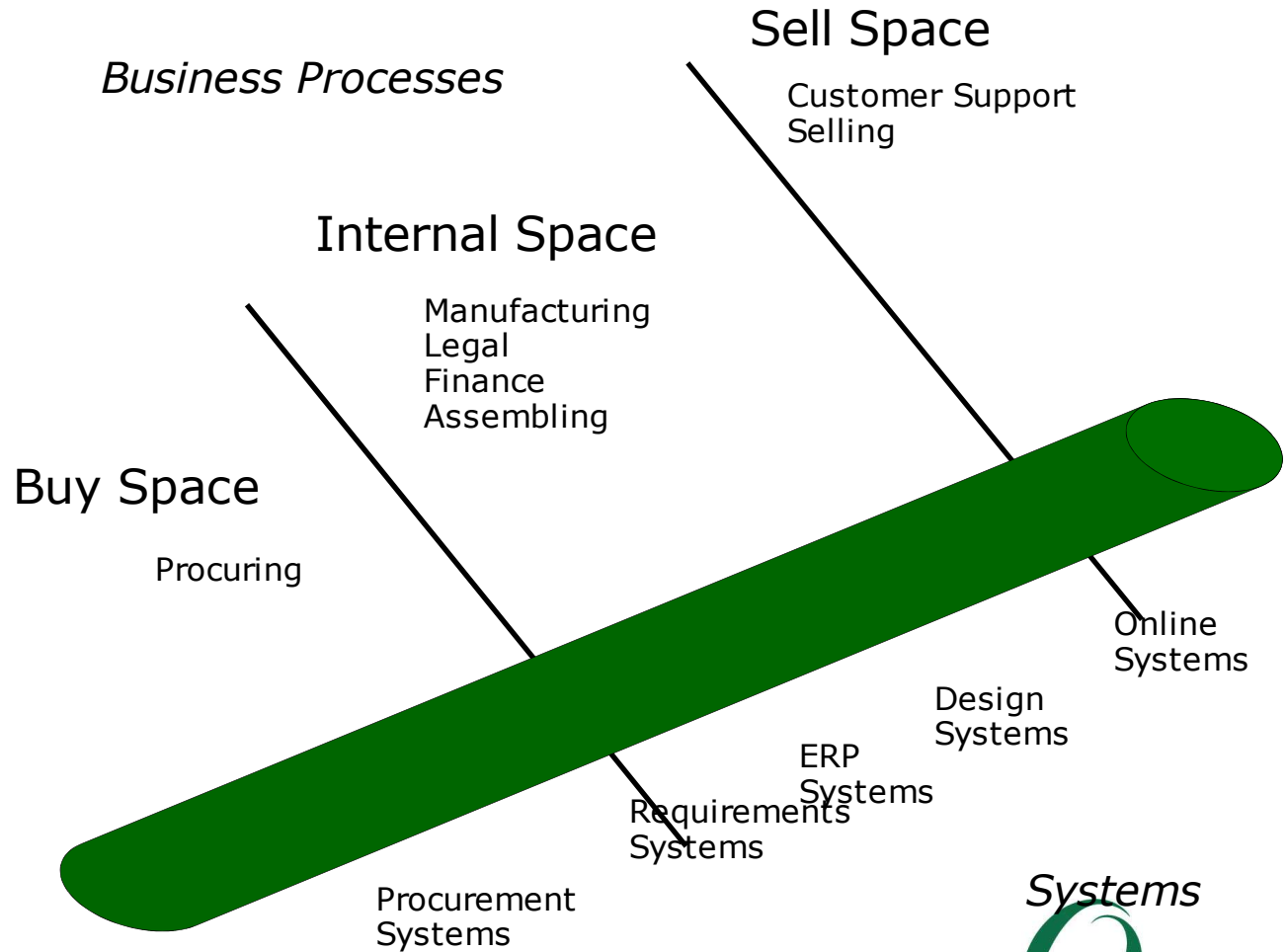# A common problem

The cause:
- multiple systems, conceived and developed individually

Compounding the problem:
- cross-functional teams continuously forming, new business partners, stove-piped information

Sell Space
Customer Support
Selling

Internal Space
Manufacturing
Legal
Finance
Assembling

Buy Space
Procuring

Online Systems

Design Systems

ERP Systems

Requirements Systems

Procurement Systems

Systems

Appl 1
Appl 2
Appl 50

Appl 1
Appl 2
Appl 50

Appl 1
Appl 2
Appl 50

Partner 1

Partner 2

Partner 3000

Boundaryless Information Flow

Problems from …

Need to integrate and optimize business processes

Business Processes

Sell Space

Customer Support
Selling

Internal Space

Manufacturing
Legal
Finance
Assembling

Buy Space

Procuring

Online
Systems

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

Boundaryless Information Flow

Problems from …

However fundamental issues are:

Integrated information and *Access to that information*

Business Processes

Sell Space

Customer Support
Selling

Internal Space

Manufacturing
Legal
Finance
Assembling

Buy Space

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Online
Systems

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

*Boundaryless
Information Flow*

Actually Want This…

Sell Space

Business Processes

Customer Support
Selling

Internal Space

Manufacturing
Legal
Finance
Assembling

Buy Space

Procuring

Online
Systems

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

*Boundaryless
Information Flow*

But Have This

Sell Space

Business Processes

Customer Support
Selling

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Legal
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Systems

Buy Space

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Design
Systems

ERP
Systems

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Systems

Systems

Procurement
Systems

Boundaryless
Information Flow

… but safeguards must be preserved

❑ Appropriate technology boundaries can be effective

(C) The Open Group 2003

Boundaryless Information Flow
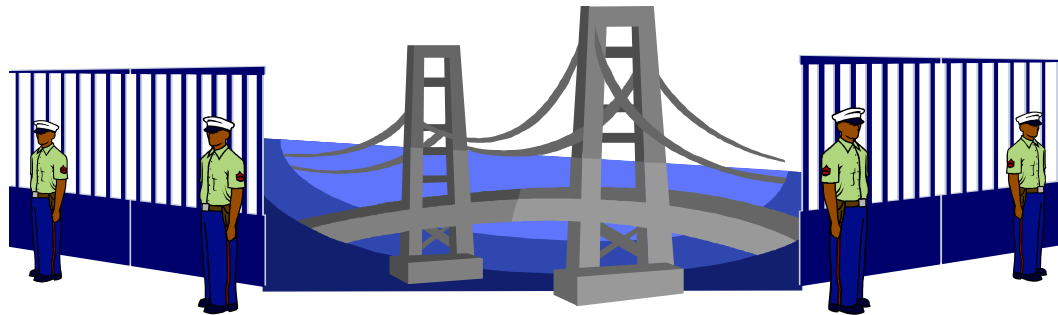
How Important…

- ❑ Not having Boundaryless Information Flow where systems interoperate, i.e. easily exchange information and use that information to improve operations, is causing organizations real pain *

  - ▪ 100s of millions in lost opportunities
  - ▪ Billions spent to make systems interoperate or to recover from mistakes

  - ▪ *The risks are not only financial but deal with lost lives*
    - ▪ *Hospitals, 911/999 systems, Critical infrastructure, Air Traffic Control…*

  * respondents to survey taken at conference

Boundaryless Information Flow

Forecasts

- Gartner Dataquest forecasts Worldwide End-User IT Spending will grow
  - from $2.7 US *trillion* in 2001
  - to greater than $3.0 US *trillion* in 2002 and
  - reach $3.4 US *trillion* in 2003

- The worldwide integration services market is expected to see a 25% compounded annual growth rate between 2001 and 2005 to $116.5 US *billion,* according to IDC

- CIO magazine survey says companies spend over 35% on integrating systems and processes

Boundaryless Information Flow

Boundaryless Information Flow

What is The Open Group doing?

A Few Requirements for Boundaryless Information Flow

- ❑ Based upon open standards
  - ▪ Expressed as profiles of standards
  - ▪ Accepted by a broad community
- ❑ Products must be certified to conform to those standards for interoperability and other things specified
- ❑ **Otherwise any solution is bound to become one of tomorrow's boundaries**

Boundaryless Information Flow
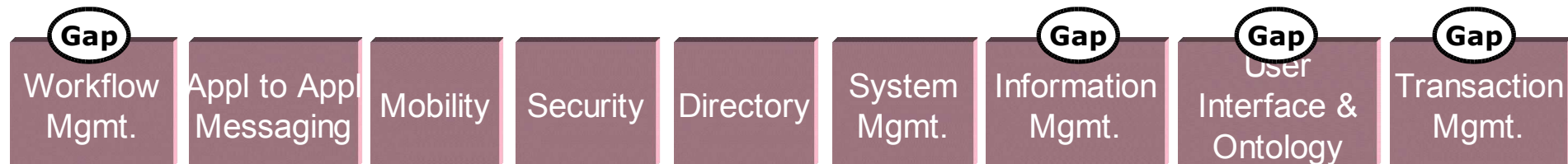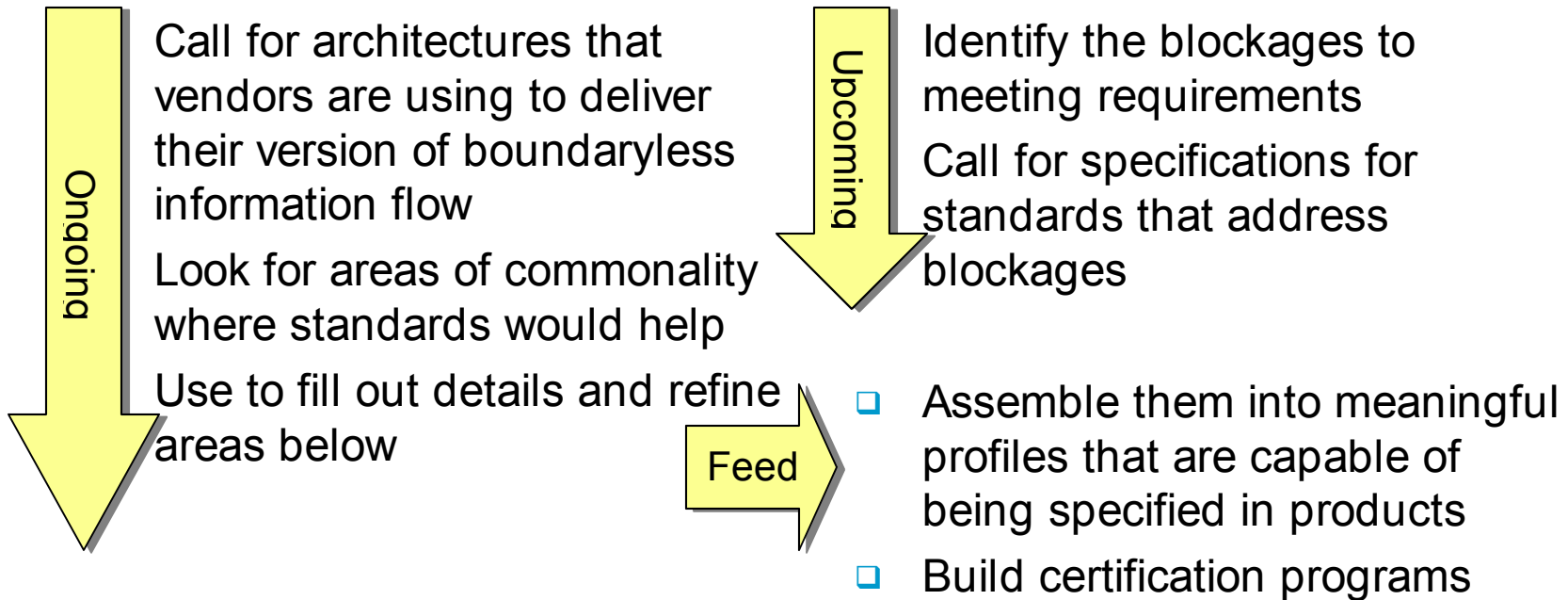
Role of Standards in Integration

- ❑ Integration is a big ticket item - costing about 35% IT spend

  - ▪ Addressing integration issues can start with integrating standards (profiles)

  - ▪ Focused standards are necessary but are silos that need to be integrated

  - ▪ Profiles that have integrated standards

    - ▪ UNIX ® profile of around 3,000 standards

    - ▪ WS-I profile around XML, SOAP, UDDI, …

- ❑ Job isn't done until products are certified!

Boundaryless
Information Flow

The Open Group Commitment

- ❑ The mission of The Open Group is to drive the creation of Boundaryless Information Flow achieved by:

  - ▪ Working with customers to capture, understand and address current and emerging requirements, establish policies and share best practices;

  - ▪ Working with vendors, consortia and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate open specifications and open source technologies;

  - ▪ Offering a comprehensive set of services to enhance the operational efficiency of consortia; and

  - ▪ Developing and operating the industry's premier certification service and encouraging procurement of certified products.
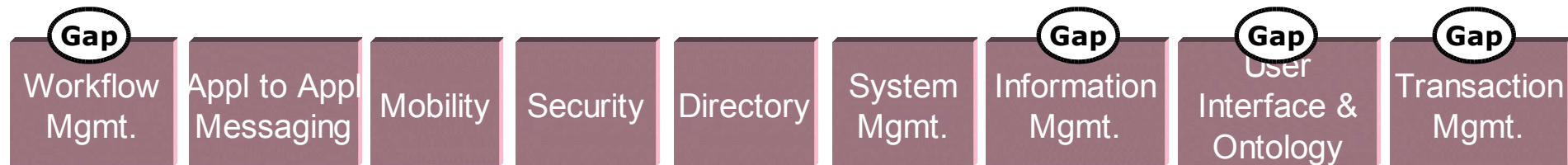
Boundaryless Information Flow

Next Steps
(some steps can be done in parallel)

Ongoing

Call for architectures that vendors are using to deliver their version of boundaryless information flow

Look for areas of commonality where standards would help

Use to fill out details and refine areas below

Upcoming

Identify the blockages to meeting requirements

Call for specifications for standards that address blockages

Feed

- Assemble them into meaningful profiles that are capable of being specified in products
- Build certification programs

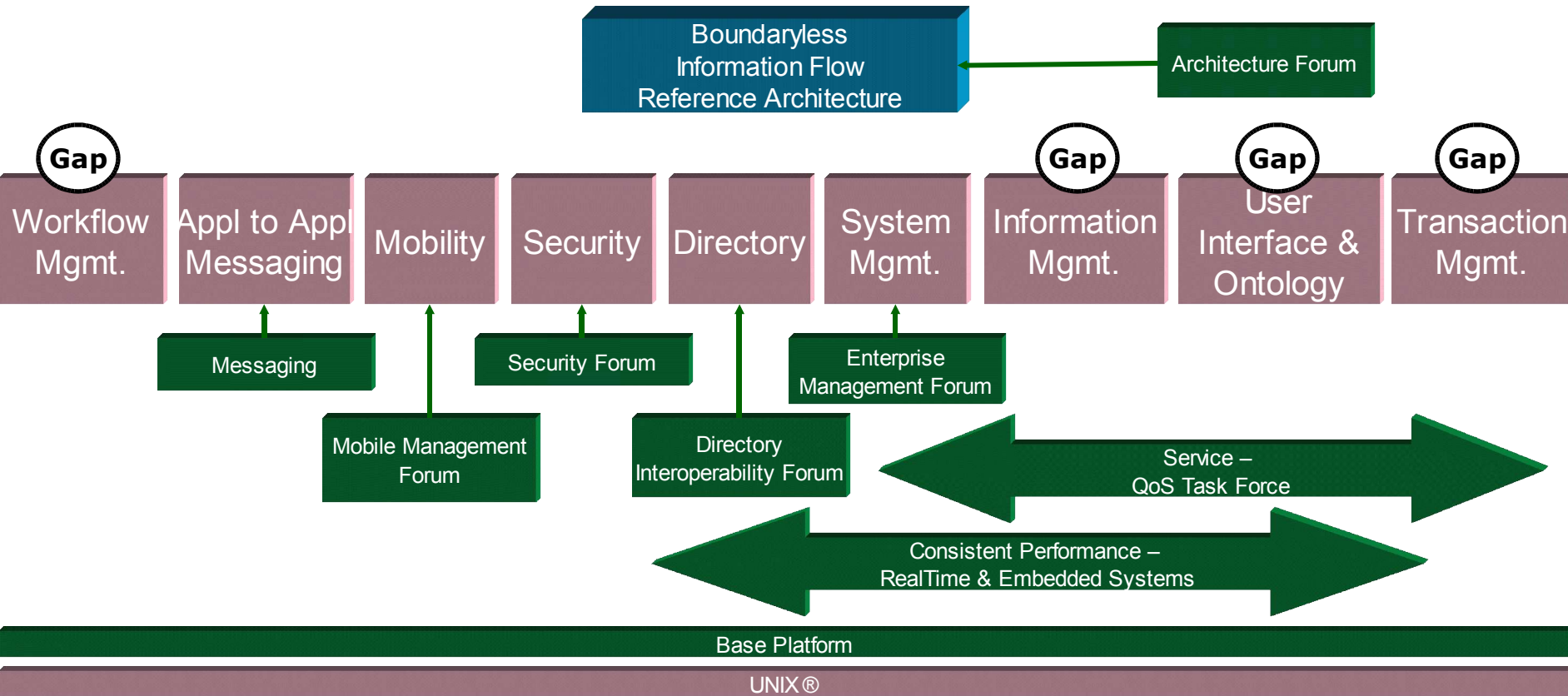| **Gap**						**Gap**	**Gap**	**Gap**
Workflow Mgmt.	Appl to Appl Messaging	Mobility	Security	Directory	System Mgmt.	Information Mgmt.	User Interface & Ontology	Transaction Mgmt.

Boundaryless Information Flow

The Open Group Role

❑ The Open Group makes standards work for customers so they buy more certified products that support Boundaryless Information Flow in the Mission Critical space

❑ The Open Group's focal point:

■ It is all about removing obstacles to sharing of information across domains in IT, and in this respect we provide the "glue" to integrate existing standards and identify gaps where standards are needed to address the problem space

Gap						Gap	Gap	Gap
Workflow Mgmt.	Appl to Appl Messaging	Mobility	Security	Directory	System Mgmt.	Information Mgmt.	User Interface & Ontology	Transaction Mgmt.

Boundaryless
Information Flow

# Relevance to *Current* Member Work Areas

How do you measure progress?

- Buy-in
  - To the concept
  - The Open Group is well positioned to tackle it
- Deliverables
  - Tangible
  - Timely
- Take-up
  - In vendor products
  - In customer usage

Boundaryless
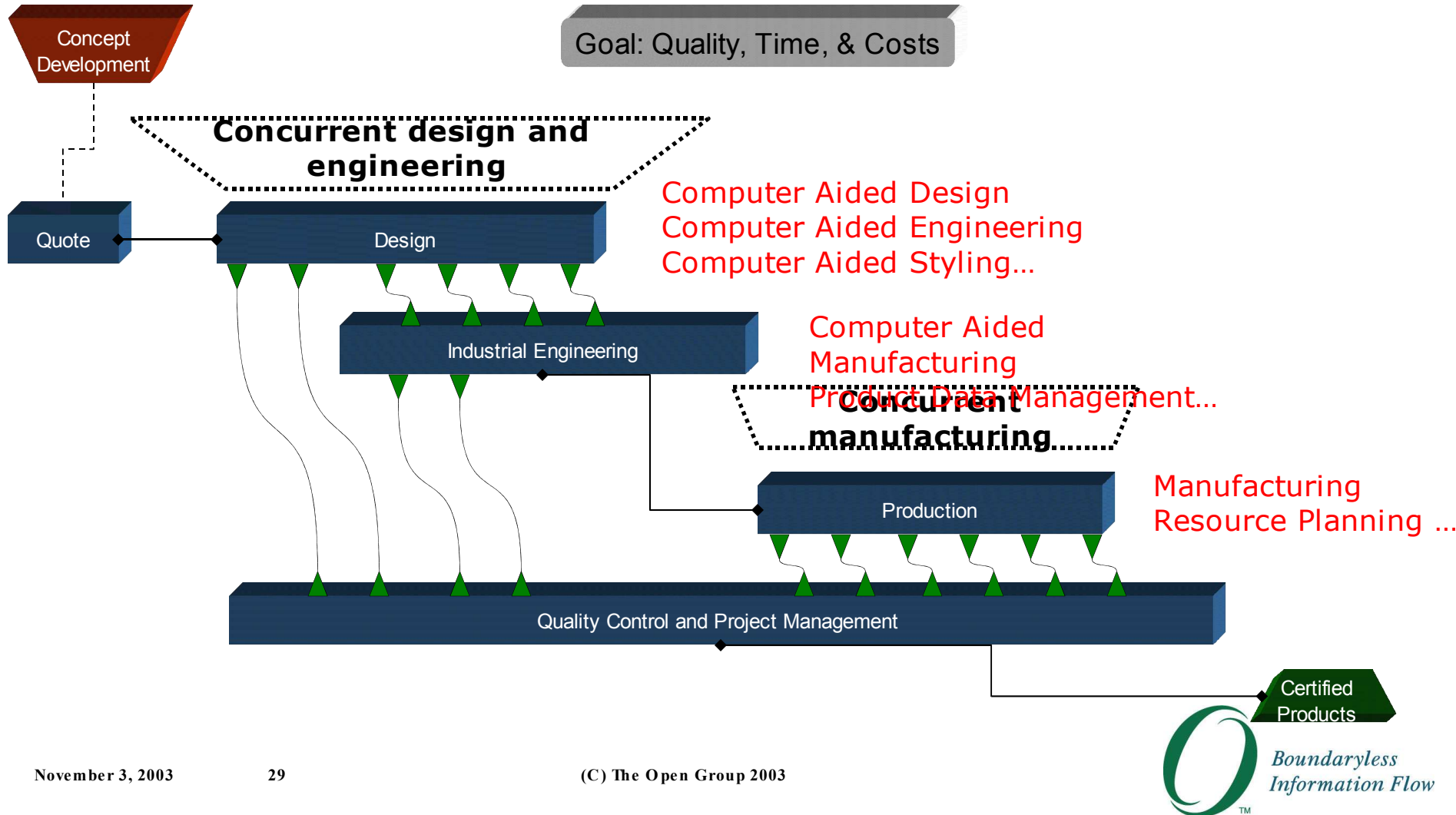Information Flow

Buy-in to the concept

- ❑ Feedback from external presentations
    - ▪ Lockheed Martin
    - ▪ Association for Enterprise Integration
    - ▪ Multiple senior level meetings
    - ▪ Enterprise Architecture Conference
- ❑ EC funding
    - ▪ NetFrame
    - ▪ ALPINE

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The NetFrame Project
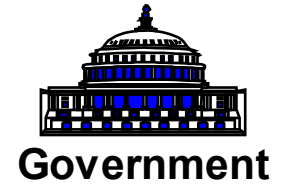
- ❑ Accelerate growth in the extended enterprise
  - ▪ Production Processes
  - ▪ IT infrastructures and architectures
- ❑ Interoperability
  - ▪ Security
  - ▪ Messaging
  - ▪ Data exchange
  - ▪ Order transactions

- ❑ Architecture
  - ▪ Develop business scenarios
  - ▪ Establish architecture baseline
  - ▪ Develop target architecture
- ❑ Tools
  - ▪ Develop evaluation techniques for potential technical building blocks
  - ▪ Develop a certification program

Boundaryless Information Flow

The NetFrame Project - A Manufacturer's Instance

Concept Development

Goal: Quality, Time, & Costs

Concurrent design and engineering

Quote

Design

Computer Aided Design
Computer Aided Engineering
Computer Aided Styling…

Industrial Engineering

Computer Aided Manufacturing
Product Data Management…

Concurrent manufacturing

Production

Manufacturing Resource Planning …

Quality Control and Project Management

Certified Products

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Information Flow

ALPINE – Active Loss Prevention for the IT- Enabled Enterprise

Government

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Information Flow
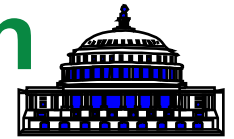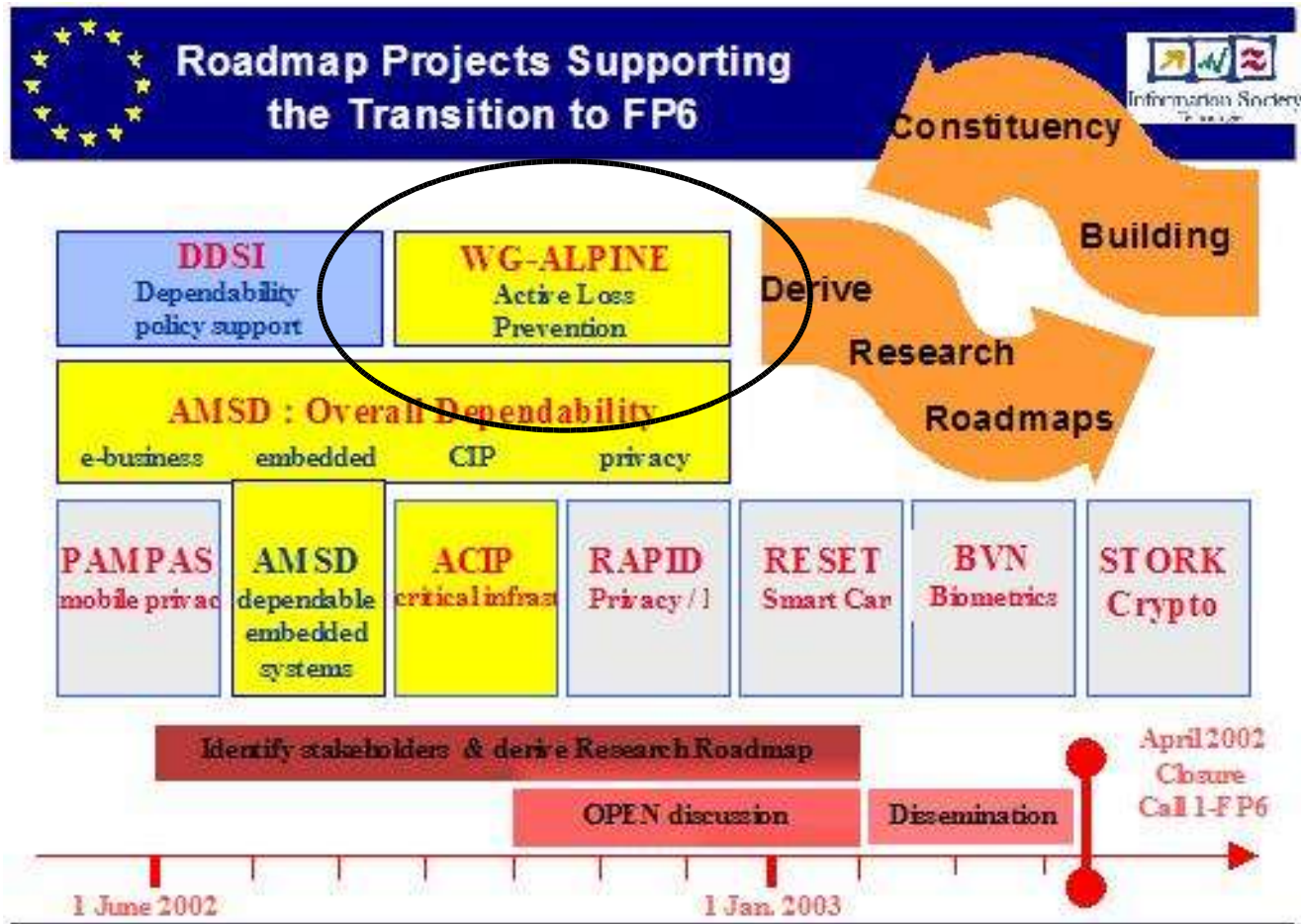
Buy-in to the concept

- ❏ "Most of today's IT infrastructures are not ready for the kind of dynamic, responsive, integrated business environment required to be a truly on demand business. But IBM is. We see four essential characteristics for the on demand operating environment:
  - Integrated
  - Virtualized
  - Open
  - Autonomic"

    - Source: http://www-3.ibm.com/e-business/

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Information Flow

How do you measure progress?

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  - Timely
- Take-up
  - In vendor products
  - In customer usage

Boundaryless Information Flow

Our Value Add and Benefits

- Development of profiles of "standards that work"
  - Reduces the cost of integration for vendors and customers alike at the most crucial stage - up front!
  - Remove road-blocks to selling more products to customers
- Certification of products against standards
  - Reduces risks associated with purchase for buy-side
  - Improves responsiveness of IT organizations
  - Lowers TCO
  - Lowers cost of certification for vendors
  - Increases system longevity
  - Increases product-line longevity

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Why The Open Group?

- ❑ Its members
  - ▪ Trusted partnership
  - ▪ Leading experts in critical areas
- ❑ Its broad industry scope
  - ▪ Unconstrained by a particular sub-set
  - ▪ Technology neutral
- ❑ Its openness to other groups
  - ▪ Enables integration across consortia
  - ▪ Enables verticals to build

Boundaryless Information Flow

Why The Open Group?

- ❑ Its tools
  - ▪ Business Scenarios
  - ▪ TOGAF
- ❑ Its approach - not everything looks like a nail
  - ▪ Open Source - Open Standards
  - ▪ Challenges
  - ▪ Guides and best practices
  - ▪ Plugfests and bake-offs
  - ▪ Certification – self-certification to rigorous
- ❑ Its profiling ability
  - ▪ Integrate standards from many sources
  - ▪ Collections of standards relevant to customer needs

Boundaryless
Information Flow

Why The Open Group?

- How do we measure against IBM's four characteristics?
  - Integrated
  - Virtualized
  - Open
  - Autonomic

Boundaryless Information Flow

Integrated

… needs access to information that was not necessarily designed to leave its original domain.

Processes

Sell Space

Internal Space

Buy Space

Customer Support
Selling

Manufacturing
Legal
Finance
Assembling

Procuring

Online
Systems

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

*Boundaryless
Information Flow*
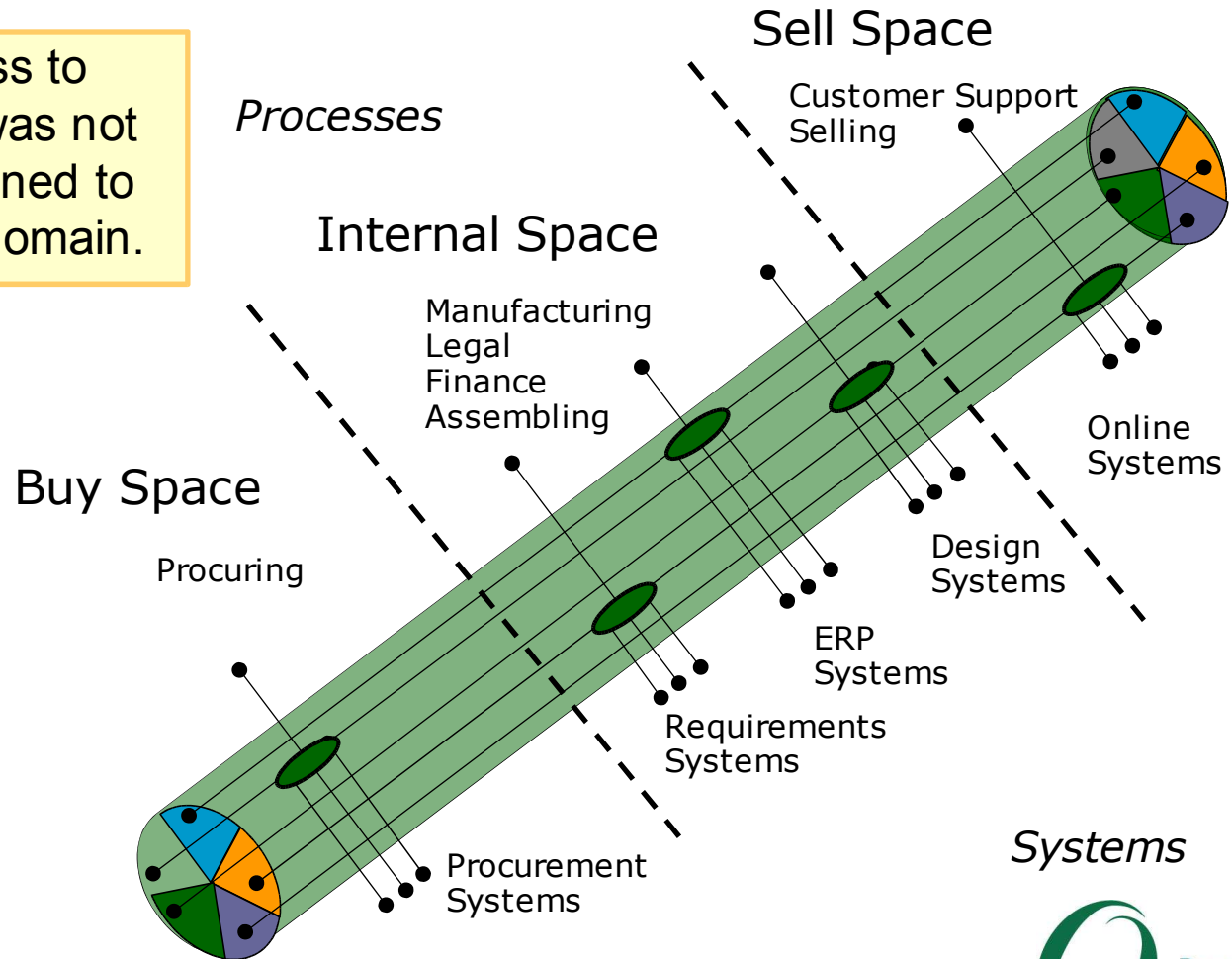
Virtualized

- ❑ Grid Computing
  - The Open Group Conference and Member Meeting,
    - Boston July 21st - 25th, 2003
  - OpenPegasus

Boundaryless Information Flow

Open

❑ "With most companies already having made huge investments in technology, the ability to "rip and replace" an entire system is not an option. Open technical interfaces and agree-upon standards are the only realistic way the many business processes, applications and devices will be able to connect."

• Source: http://www-3.ibm.com/e-business/

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Autonomic

❑ The convergence of cluster/modular/blade architecture with autonomic/self-managing/utility computing requires a new management paradigm.

❑ AQuaReuM

  ▪ Application Quality/Resource Management

  ▪ .... Ensuring Certainty in Service Delivery

❑ To develop an architectural framework, standards profile, and appropriate standards for an autonomic approach to managing applications across one or more modular, virtual, dynamic data centers within one or more real-time enterprises.

Boundaryless Information Flow

How do you measure progress?

- Buy-in
  - To the concept
  - The Open Group is well positioned to tackle it
- Deliverables
  - Tangible
  - Timely
- Take-up
  - In vendor products
  - In customer usage

Boundaryless Information Flow

Deliverables

❑ Business taxonomy

❑ Technical architecture

❑ Member work areas

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The role of architecture

❑ "Architecture is fast becoming one of the main instruments for improving Business IT Alignment."

❑ "It is time to broaden our view and build systems that last and that keep delivering value to the business. Business and IT Architecture play a pivotal role in achieving this goal.."

Raymond Slot M.Sc, MBA, Principal Consultant and Enterprise Architect for Cap Gemini Ernst & Young

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Boundaryless Information Flow - Business Taxonomy
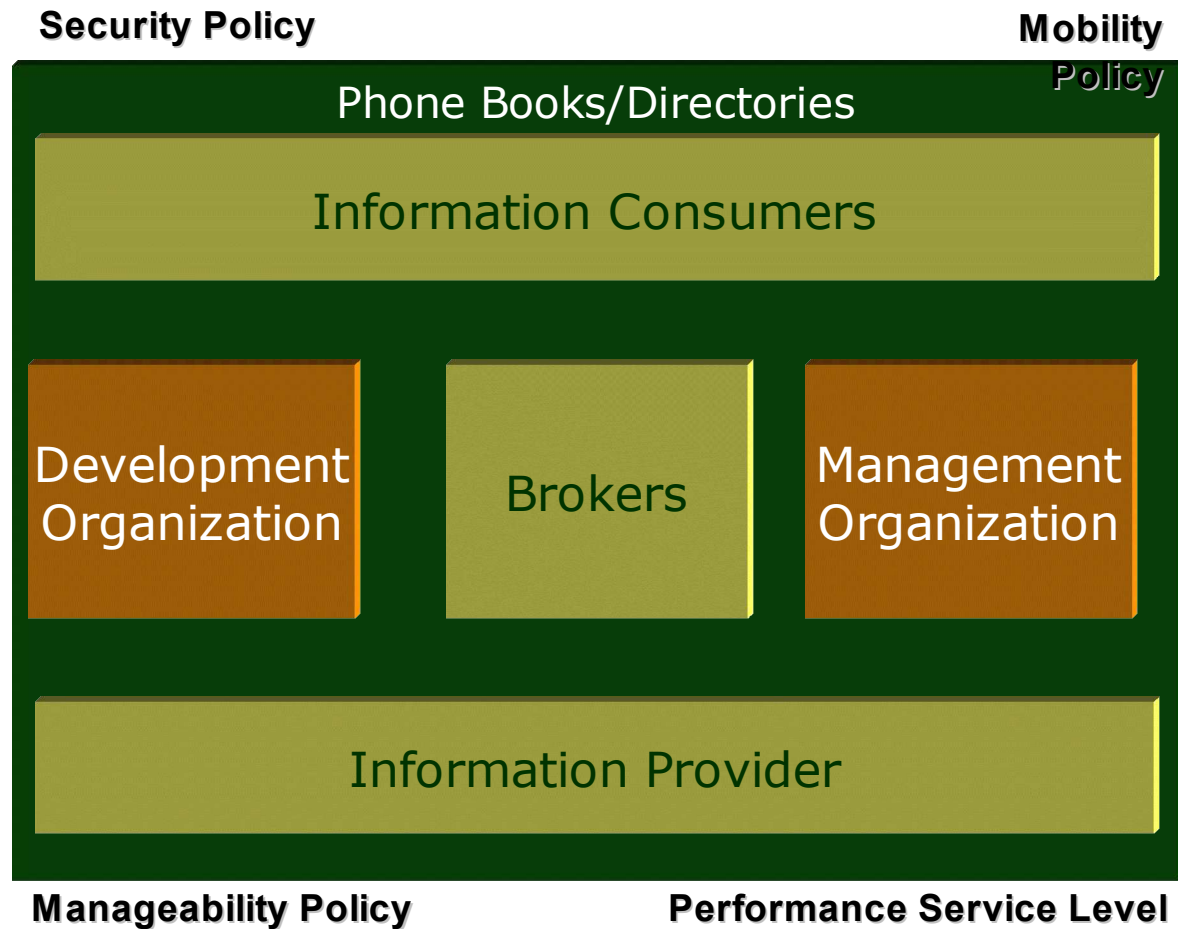
Boundaryless Information Flow - Technical Taxonomy
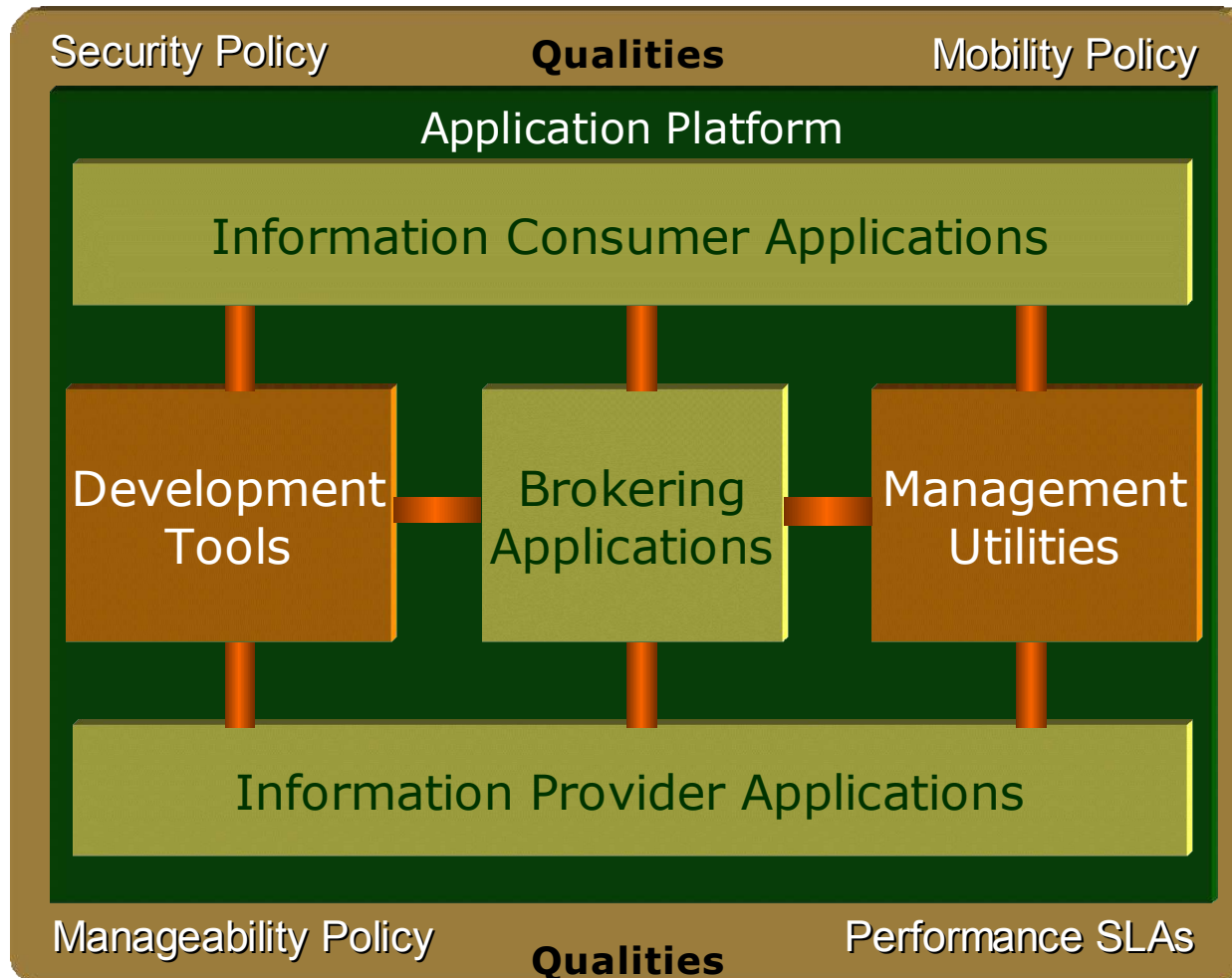
Classes of Interfaces - formats and protocols …

A Level 2 Model

Security **Qualities** **Mobility**

Application Platform

Information Consumer Applications

Web Portal — Desktop Video Conference
Streaming audio / video — information Access — Mail — Phone / Fax

**Languages Libraries
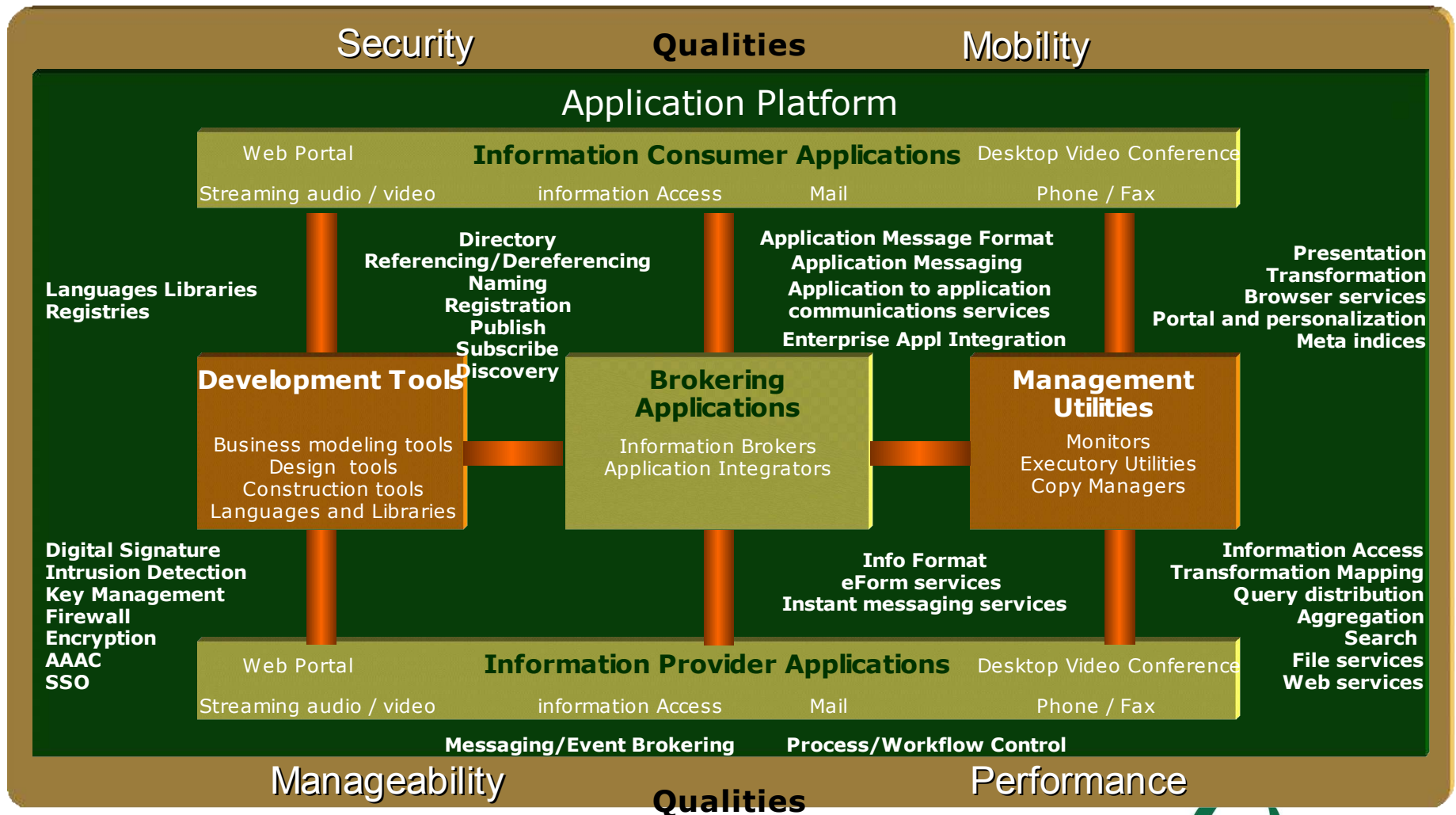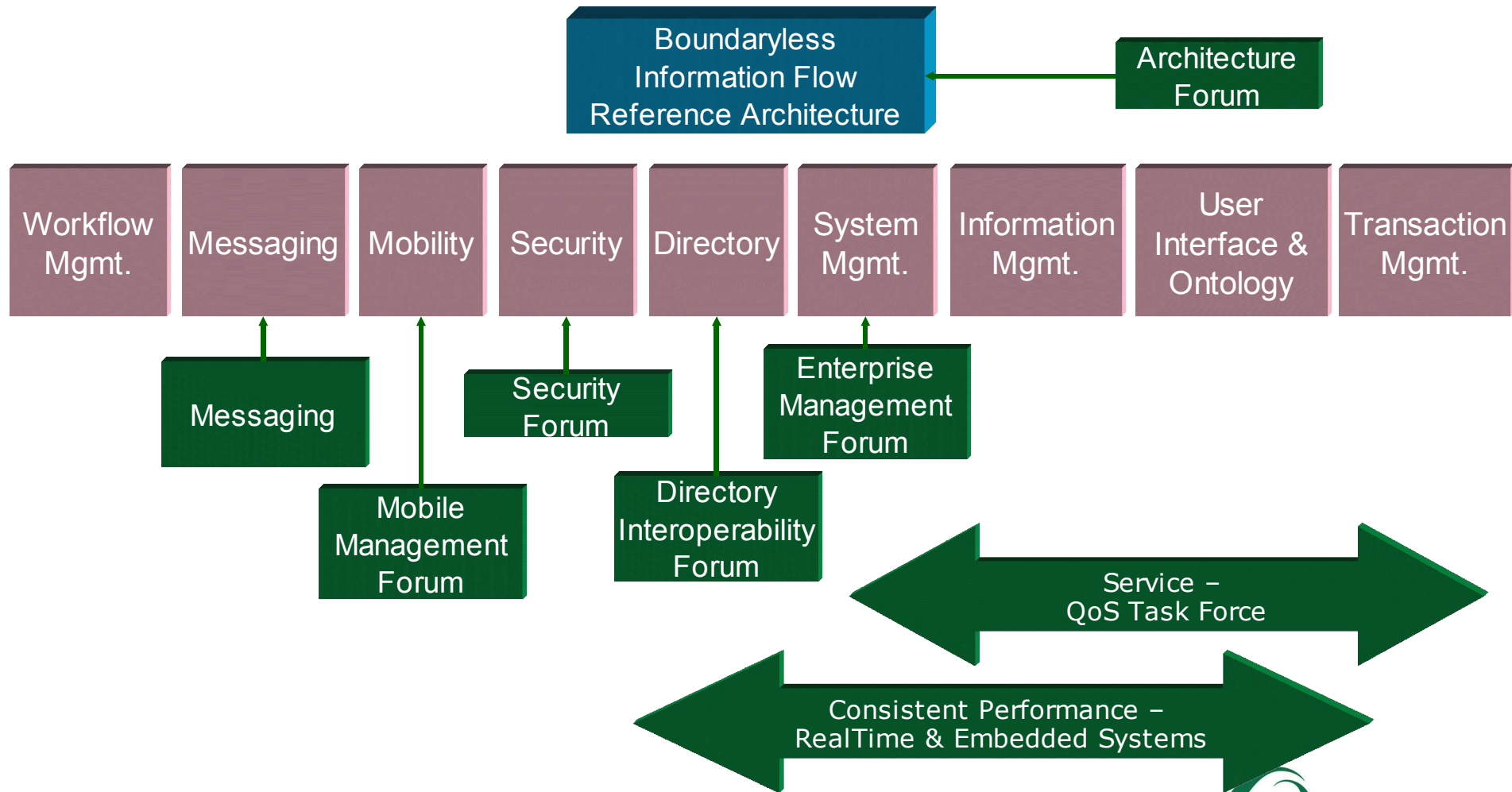Registries**

**Directory
Referencing/Dereferencing
Naming
Registration
Publish
Subscribe
Discovery**

**Application Message Format
Application Messaging
Application to application
communications services
Enterprise Appl Integration**

**Presentation
Transformation
Browser services
Portal and personalization
Meta indices**

Development Tools

Business modeling tools
Design tools
Construction tools
Languages and Libraries

**Brokering
Applications**

Information Brokers
Application Integrators

**Management
Utilities**

Monitors
Executory Utilities
Copy Managers

**Digital Signature
Intrusion Detection
Key Management
Firewall
Encryption
AAAC
SSO**

**Info Format
eForm services
Instant messaging services**

**Information Access
Transformation Mapping
Query distribution
Aggregation
Search
File services
Web services**

Information Provider Applications

Web Portal — Desktop Video Conference
Streaming audio / video — information Access — Mail — Phone / Fax

Messaging/Event Brokering **Process/Workflow Control**

Manageability **Performance**

Qualities

*Boundaryless
Information Flow*

Member work areas

	Workflow Mgmt.	Messaging	Mobility	Security	Directory	System Mgmt.	Information Mgmt.	User Interface & Ontology	Transaction Mgmt.

	Pre 02	Jan 02	Apr 02	Jul 02	Oct 02	Jan 03	Apr 03	
Business Scenario	■							"Outstanding …. requirements" paper
Secure Messaging	■	■	■	■	■	■	■	Toolkit, workshops Plugfests Q3/4
Identity Management						■	■	New activity launched
Trust				■	■	■	■	ALPINE – Trust vocabulary
SPAM							■	White Paper Q2 Defense options Q2 Guide to legal action Q4
Unified Messaging							■	Business Scenario Q2
Instant Messaging							■	Problem statement Q3

Boundaryless Information Flow

| Workflow Mgmt. | Messaging | Mobility | Security | Directory | System Mgmt. | Information Mgmt. | User Interface & Ontology | Transaction Mgmt. |

	Pre 02	Jan 02	Apr 02	Jul 02	Oct 02	Jan 03	Apr 03	
Secure Mobile Architecture			■	■	■	■	■	Vision and architecture first draft Jun 03
Device Management and Provisioning								
Access control							■	Joint activities with Security Forum, Directory Interoperability Forum and Messaging Forum
Directories for Mobility							■	
Identity Management							■	

Boundaryless Information Flow

	Pre 02	Jan 02	Apr 02	Jul 02	Oct 02	Jan 03	Apr 03	
LDAP Certified							■	
LDAP Ready							■	
DSML/SOAP						■	■	Plugfest – all major directory vendors
PKI Management and Manageability				■				Joint with Security Forum
Access control							■	Joint activities with Security Forum, Messaging Forum and Mobile Management Forum
Directories for Mobility					■	■	■	
Identity Management				■	■	■	■	

Boundaryless Information Flow

	Pre 02	Jan 02	Apr 02	Jul 02	Oct 02	Jan 03	Apr 03	
Common Manageability Infrastructure	■	■	■	■	■	■	■	Continuing development of open source and accompanying Technical Standards
Application Quality / Resource Management							■	New activity launched First draft Architecture Q3 First draft Technical Standards Q4
Application Response Measurement	■	■	■	■	■	■	■	Version 4 Technical Standard Q2
Software License Use Management	■	■	■	■	■	■	■	Revised Technical Standard Q4
Service Level Agreements		■	■	■	■	■	■	Survey/White Paper TMF Handbook Q4
Application Information Model	■	■	■	■	■	■	■	Run-Time Management Model Q2 Life-Cycle Model Q4

Boundaryless Information Flow

Measuring Progress – Buy-in

Concept

The Open Group role

0%   25%   50%   75%   100%

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Measuring Progress Deliverables

Security   **Qualities**   Mobility

Secure Mobile Architecture

Active Loss Prevention

Guides

AQuaReuM

Manageability   **Qualities**   Performance

Boundaryless
Information Flow

Measuring Progress Deliverables

Security   Qualities   Mobility

Application Platform

Information Consumer Applications

Directories for Mobile

Directory Certification

Secure Messaging Toolkit

Development Tools

Brokering Applications

Management Utilities

ARM/AIC OpenPegasus

Identity Management

Access Control

Instant Messaging

Unified Messaging

SPAM

Information Provider Applications

Manageability   Performance

Qualities

Boundaryless Information Flow

Measuring Progress – Take-up

- ❑ Difficult to measure
  - ◼ Secure Messaging
    - ◼ Workshops
    - ◼ Up-dates to e-mail clients?
  - ◼ OpenPegasus
    - ◼ Being built into vendor systems management offerings
    - ◼ referenced in Grid standards
- ❑ Too early to tell

Boundaryless Information Flow

Summary

- ❑ Boundaryless Information Flow is a relevant and real problem

- ❑ We are making progress in all areas

- ❑ Progress will be accelerated by an architected approach

  - ▪ Generating reusable assets for members

- ❑ Progress will be accelerated by more involvement

  - ▪ Generating reusable assets for members

Boundaryless
Information Flow

Boundaryless Information Flow

How you can get involved to address your Boundaryless Information Flow issues in a highly leveraged environment?

CIOs Have Issues in Common

- In general there is a trend
  - The demands on IT are growing
  - IT budgets are decreasing

- CIOs are being asked to *do more for less*, so
  - Look for leverage opportunities
    - Outsourcing
    - Off shore development
    - Open source
    - Collaborative development
    - …

IT demand

Ever widening gap!

**IT budget
- run rates are declining!**

*Boundaryless
Information Flow*
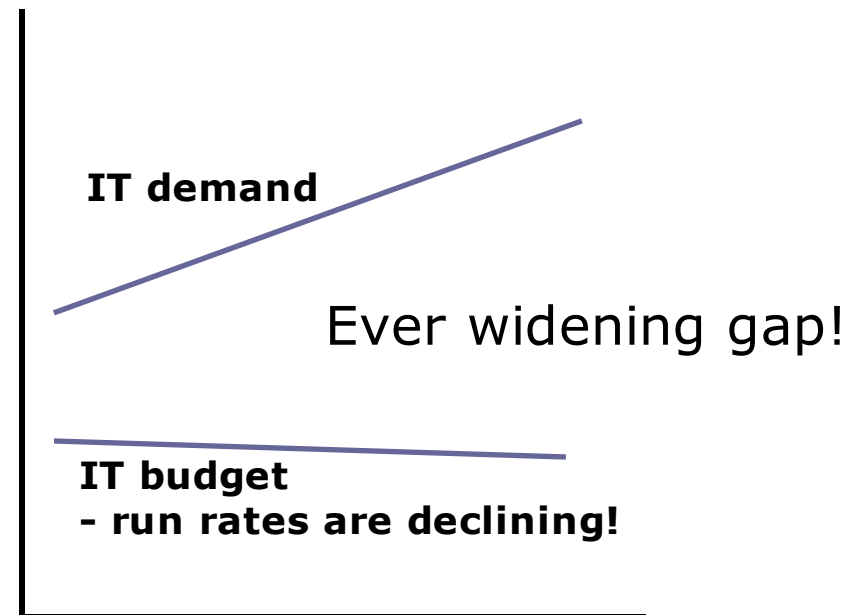
Business Has Problems in Common

❑ Access to integrated information

- Across the organization

- With business partners

- Ubiquitous requirement

❑ More for less

- Where is leverage?

- Who has fixed this before?

- Who has the skills?

Boundaryless
Information Flow

The Open Group Value

- ❑ Address "more for less" issue
    - ▪ Membership model is based on leverage
    - ▪ Work with others that have similar problems and get more done cheaper, better, and faster
- ❑ Access to tools to solve problems
- ❑ Access to people that have similar problems
    - ▪ At CIO level and the technical levels

Boundaryless Information Flow

Summary

- ❑ Ubiquity of problem
  - ▪ Solve common aspects together
- ❑ Partnership only way to solve
  - ▪ Don't reinvent, lever
- ❑ The Open Group
  - ▪ Center of excellence
  - ▪ Tools, techniques & best practices
  - ▪ Experts and guidance

Boundaryless Information Flow