# *Enabling Net-Centric Warfare*


# Architectures and Infrastructures

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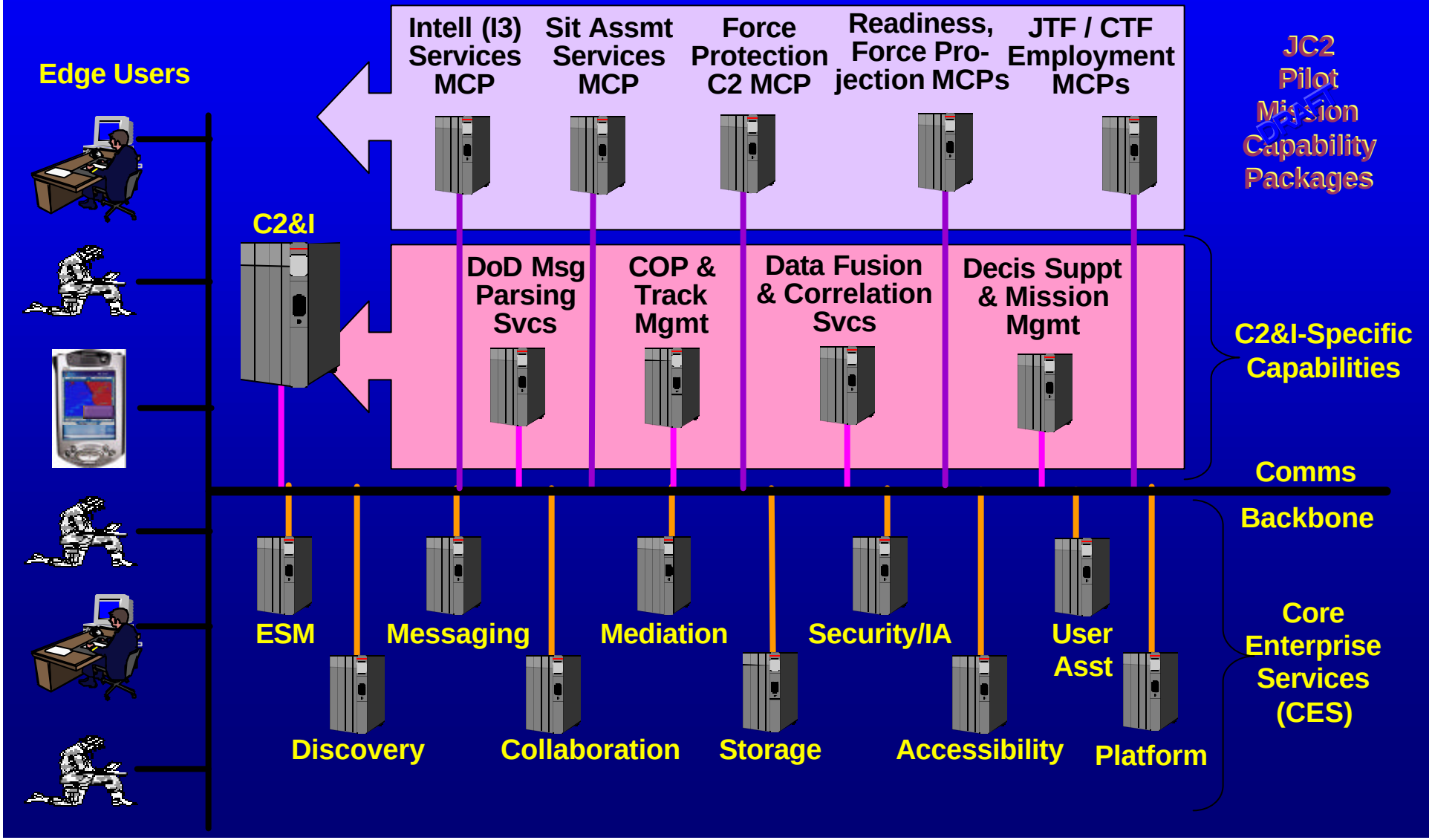
# Notional JC2/NCES Taxonomy



# Networks and Hosting


(Proposed) Objective Computing and Network Services:

- *SLA-based bits, MIPS and Bytes*
  - ➢ *Capacity on Demand (End2End QoS)*
  - ➢ *Dynamic Provisioning*
  - ➢ *Reliable Data Distribution and Replication (Persistent and Non-)*
  - ➢ *Effective, Efficient Acquisition & Management*

# The "NEW" Computing Environment Qualities

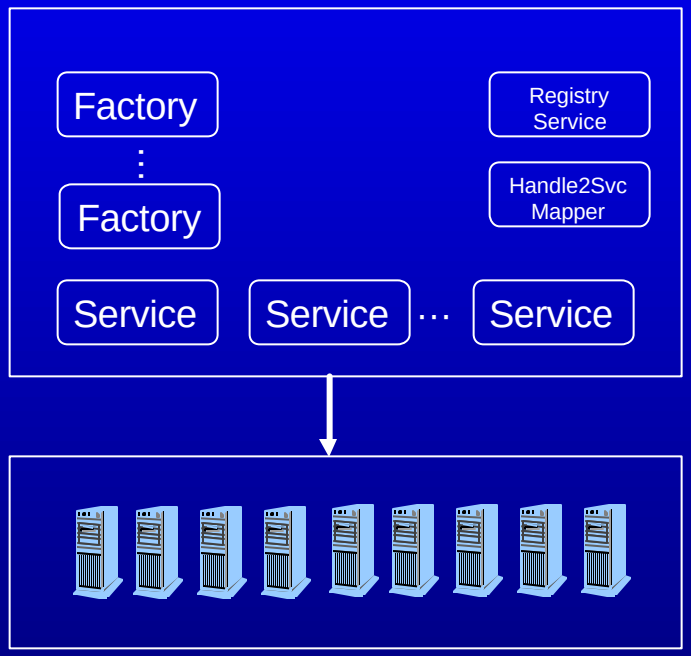
- **The Open Grid Services Architecture (OGSA)…"allow applications to access and share resources across distributed, wide area networks"**
  - **Uniform exposed service semantics**
  - **Defines standard mechanisms for creating, naming, discovering transient Grid service instances**
  - **Provides location transparency and multiple protocol bindings for service instances**
  - **Support integration with underlying native platform facilities (e.g. Linux)**

➢ **Heterogeneous Storage, Bandwidth, Processing "On Demand"**
➢ **Network as a Backplane**

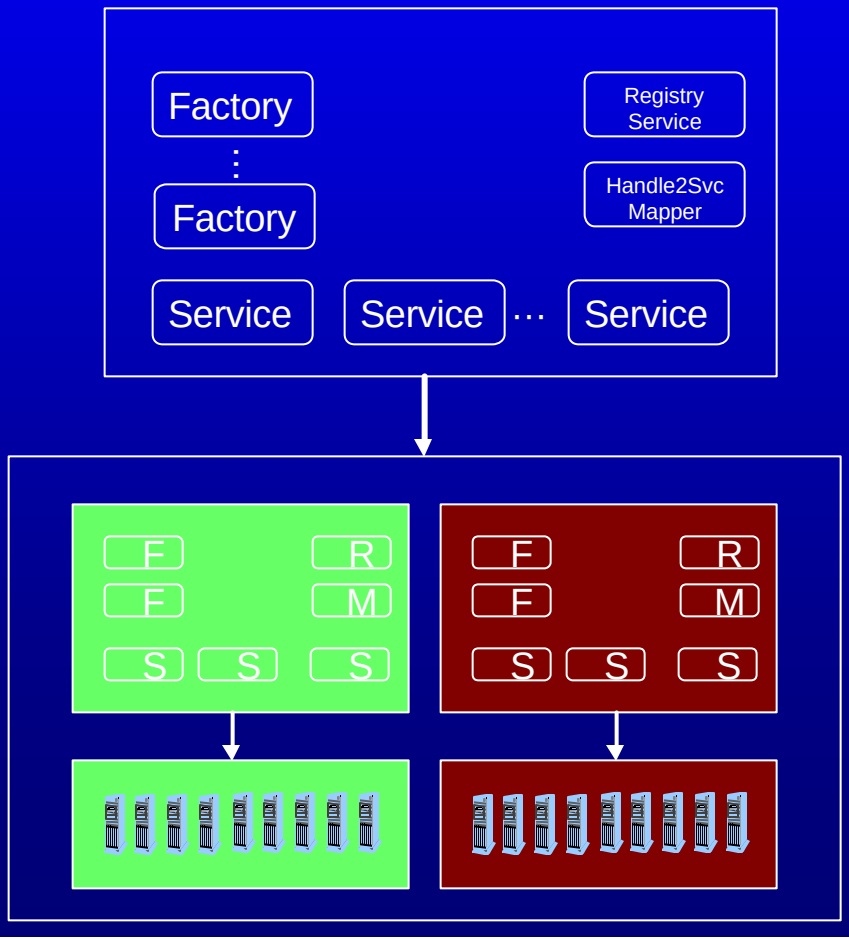
**http://www.globus.org/research/papers/ogsa.pdf**

# Gridded Services Environment

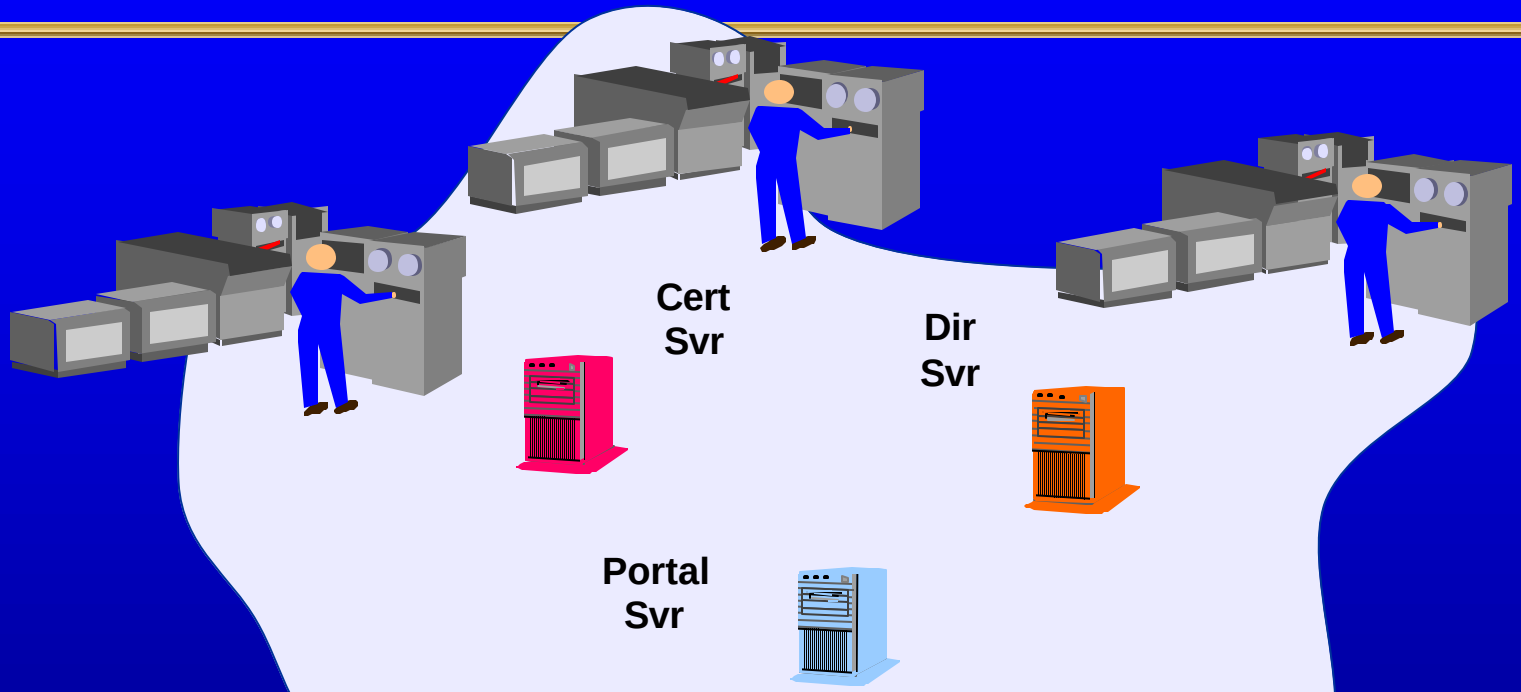
## Simple Hosting Environment




## Virtual Hosting Environment



# Infrastructure




(Proposed) Objective Enterprise Services:

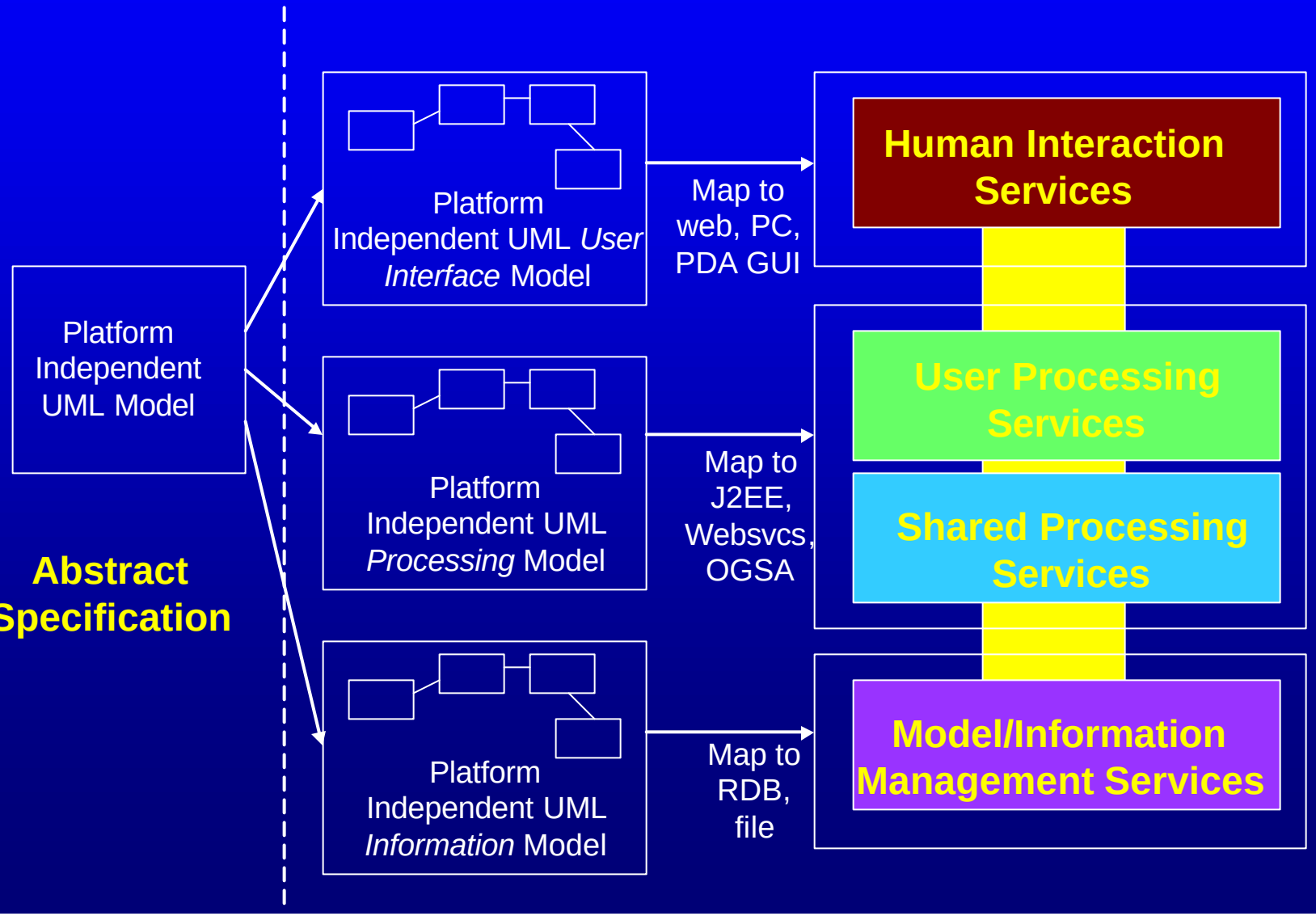
- *Building Blocks for Secure Integration of Applications and Data Sources*
  - *Identification & Authentication*
  - *Directory*
  - *Messaging & Transactions*
  - *Information Management (Discovery, Access, Dissemination)*
  - *Collaboration*
  - *Enterprise Management*

# The "NEW" Infrastructure Services Model

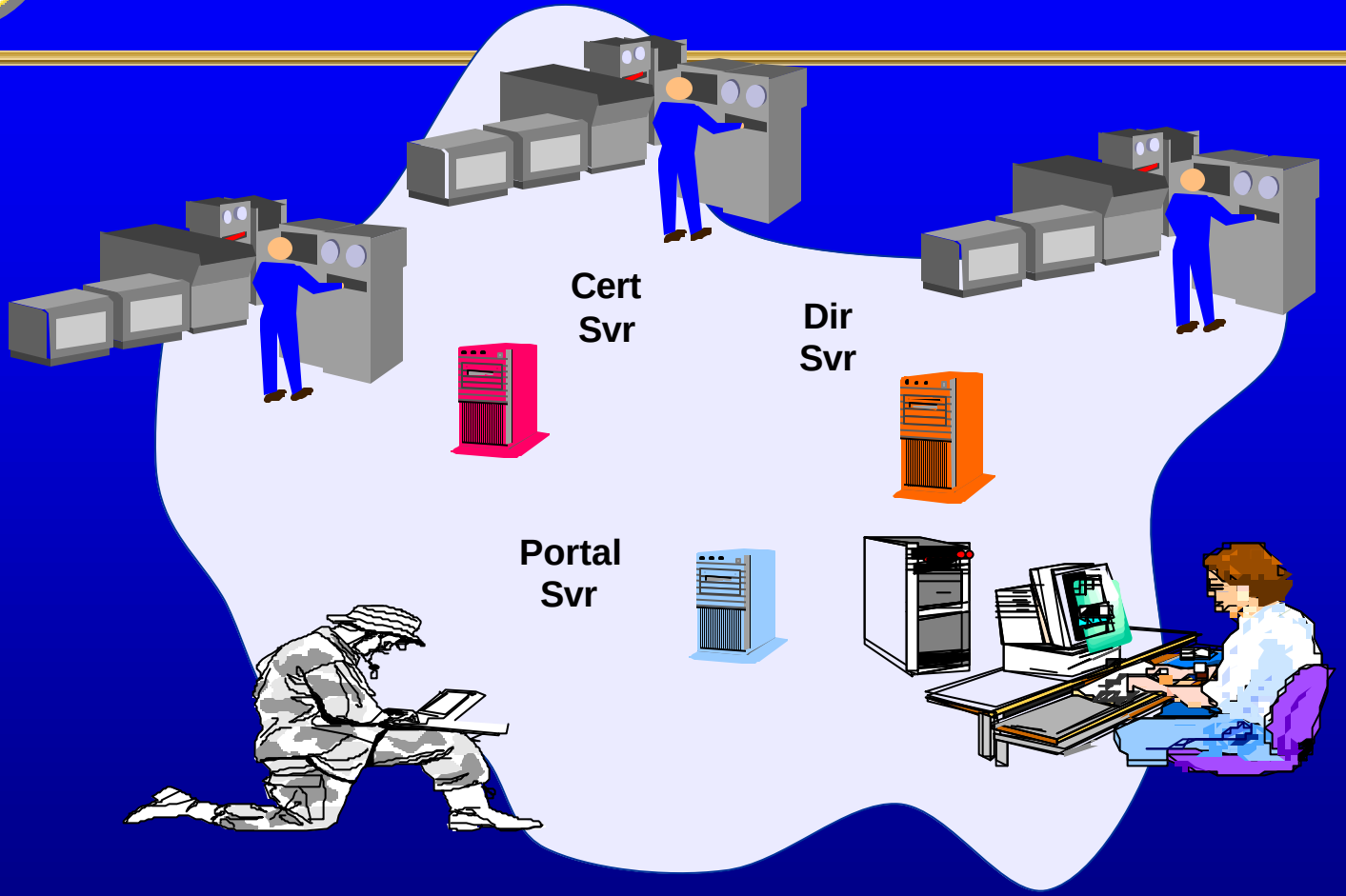
- The OpenGIS Consortium (OGC) Service Architecture…"provides a framework for developers to create software that enables users to access and process…data across a generic computing interface with an open IT environment "
  - Extensible beyond geospatial data
  - Enable interoperable data services through interface standardization
  - Support development of a service catalog through definition of service metadata
  - Separate data instances and service instances
  - Enable use of one provider's service on another provider's data
  - Define an abstract framework which can be implemented in multiple ways

http://www.opengis.org/techno/specs/99-051.pdf

# Mapped Infrastructure Services



# “Killer” Applications…JC2, FMMP

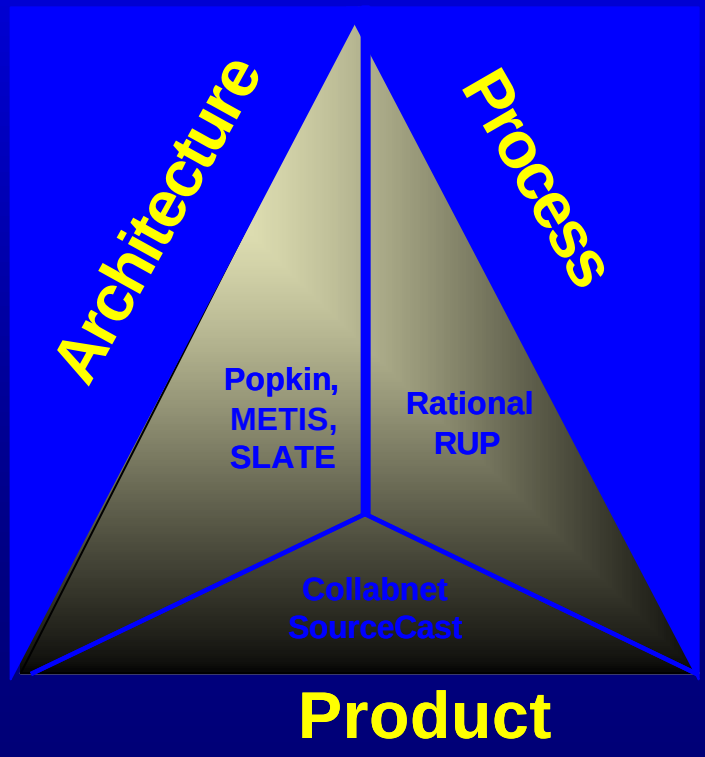



**(Proposed) Objective Applications & Data Sources**

- *Community of Interest Functionality*
- *Secure, Interoperable Plug-n-Play Data Sources and Applications*

# The "NEW" Development Environment

- **Community Source Process**
  - Shared Source and/or Component Libraries
- **Common Architectural Approach**
  - Shared Software Safety Approach… Security, Availability, Reliability, Risk Environment, QoS
- **Common Lifecycle Approach**
  - Shared Test Environment Replicating Real-World Scale
  - Shared Requirements Management
  - Shared Roll-Out Planning and Execution



# From Systems to Service-Based Capabilities

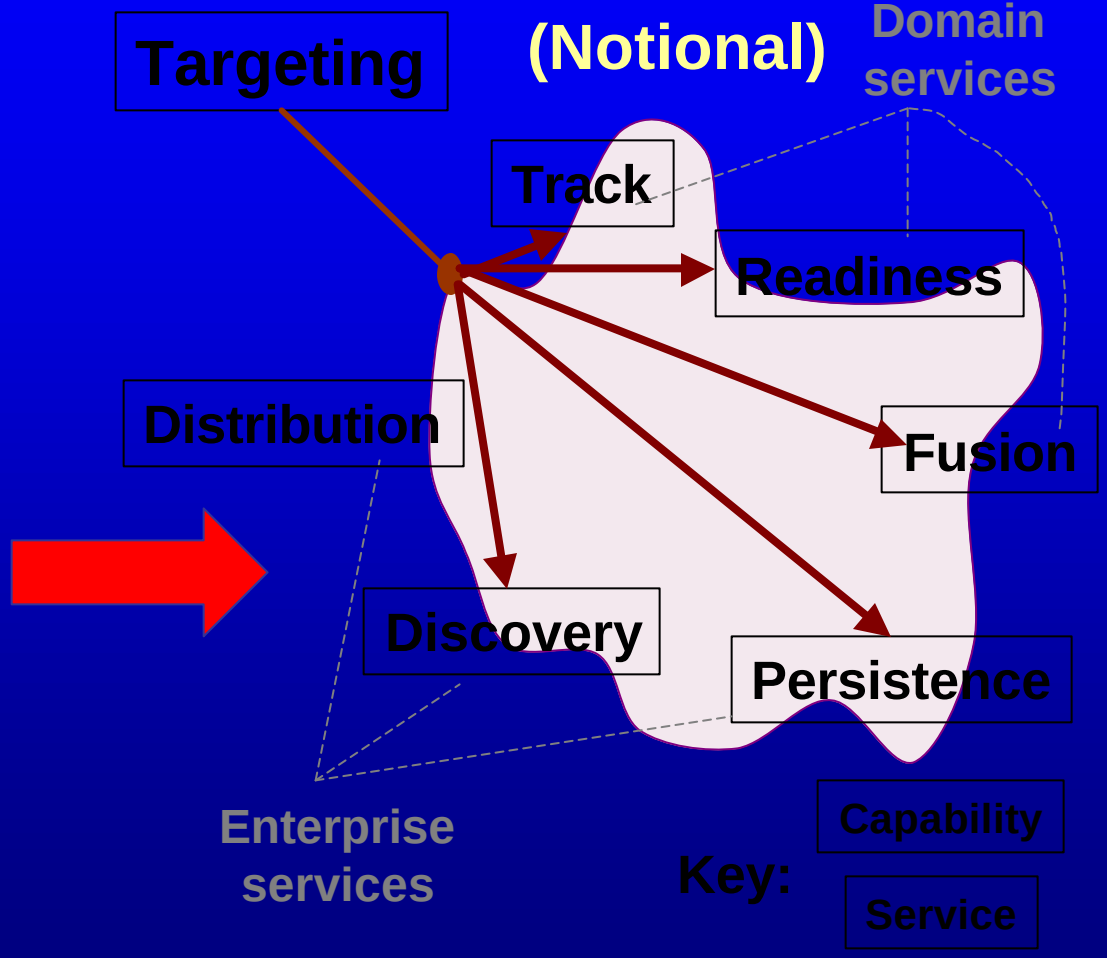
**Today: Systems with Targeting Applications**

**GCCS**

**ABCS**

**GCCS-M**

**TBMCS**




***Capability discovers and uses common services***

# Challenges

- Open, Interoperable Architecture
- "Safe" Components
  - Security
  - Availability
  - Reliability
  - Risk Environment
- Integrated Toolsets
  - Architecture
  - Life Cycle Management
  - Development

"Freedom is not synonymous with an easy life.... There are many difficult things about freedom: It does not give you safety, it creates moral dilemmas for you; it requires self-discipline; it imposes great responsibilities; but such is the nature of Man and in such consists his glory and salvation."

*Margaret Thatcher*