Enabling Net-Centric Warfare

Architectures and Infrastructures

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Notional JC2/NCES Taxonomy

Core Enterprise Services (CES)

Messaging ESM

Discovery Collaboration Storage Accessibility Platform

Decis Suppt & Mission Mgmt Data Fusion & Correlation Svcs COP & Track Mgmt

DoD Msg Parsing Svcs Force Protection C2 MCP

Intell (I3) Services MCP Sit Asmmt MCP

JC2 Pilot Mission Capability Packages

C2&I-Specific Capabilities

Comms Backbone

Core Enterprise Services (CES)
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

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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

Gridded Services Environment

Simple Hosting Environment
- Factory
- Factory
- Service
- Service
- Service

Virtual Hosting Environment
- Factory
- Factory
- Service
- Service
- Service

Registry Service
Handle2Svc Mapper
(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 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


The “NEW” Infrastructure Services Model
Mapped Infrastructure Services

Abstract Specification

- Platform Independent UML Model
  - Platform Independent UML User Interface Model
  - Platform Independent UML Processing Model
  - Platform Independent UML Information Model

Human Interaction Services
  - Map to web, PC, PDA GUI

User Processing Services
  - Map to J2EE, Websvcs, OGSA

Shared Processing Services

Model/Information Management Services
  - Map to RDB, file
“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

Key:
- Capability
- Service

Capability discovers and uses common services

Today: Systems with Targeting Applications
- GCCS
- ABCS
- GCCS-M
- TBMCS

Domain services
- Targeting
- Track
- Readiness
- Fusion
- Persistence
- Discovery

Enterprise services

(Notional)
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