
Architecture Solutions to Interoperability

ROGER SMITH
Chief Scientist & CTO
US Army PEO STRI

Approved for Public Release.
Security and OPSEC Review Completed: No Issues.
Testing, Training, and Operations

INTEROPERABILITY:
POLICY TO PERFORMANCE

MILCOM 2007
Model-View-Control (1979 Reenskaug)

- **Output View**
- **Input Control**
- **Model Function**
Distributed Model-View-Control

Output View

Exchange Standards

Model Function

Input Control

Interoperability: Policy to Performance

MILCOM 2007
Service Oriented Model-View-Control

Output View

Input Control

Discovery

Exchange Standards

Model Function

INTEROPERABILITY: POLICY TO PERFORMANCE

MILCOM 2007
Service Oriented Architecture

- Loosely-coupled relationships between providers and consumers
- Broker for registering and discovering services
- Ability to access a service/data that were originally unknown to the client
- Reliance on standards for data and services to enable interoperability
IED Example

- Operations
  - Form
  - Placement
- Testing
  - Lethal Area
- Broker
  - Tactics
- Training
  - Lethal Area
  - Pk/Outcome

INTEROPERABILITY: POLICY TO PERFORMANCE

MILCOM 2007
Conclusion

- SOA is a hot buzzword and large system architecture solution
- Its key strength is in allowing applications and users to access services on-demand
- Many computer systems are hostage to their original designs
- SOA may allow new systems to work together without being designed and built together
- SOA can bridge Training, Testing, and Operations systems
Infinite Illustrations

INTEROPERABILITY: POLICY TO PERFORMANCE

AUDIENCE SOLUTIONS
- Customer Management
- Workforce Productivity
- Partner Collaboration

SERVICE MANAGEMENT
- Presentation Services
- Business Logic
- Security Services
- Data Services
- Messaging Services
- Integration Services

TLO: Travel and Leisure
SIC: Consumer and Industrial Products
FS: Financial Services
C: Entertainment
ICE: Information/Communication

SERVICES INFRASTRUCTURE

INDUSTRY SOLUTIONS

BENEFITS
- Optimization
- Transformation
- Responsiveness
- Cost Effectiveness
- Functionality

Event Services
- Security Services
- Business Process Management Services
- Business Rule Services
- Object Persistence Services
- Solution Frameworks Development
- BAM
- SAML
- BAN
- WIWI
- e-mail
- HTML / JSP
- UI
- BI
- BI

Integration and Transformation Services
- ERP
- SLA
- Forward/Backward chaining
- Inference
- Situational Resolution
- Research
- Rule
- Properties

Business Events
- External Events
- Internal Events
- Event Driven Architecture
- Event Handling
- Event Processing
- Event Notification
- Event Registration

QoS and Performance Monitoring
- Authentication
- Authorization
- QoS
- Performance
- Monitoring

Security Services
- Identity Management
- Access Control
- Auditing
- Encryption
- Key Management
- Security Policies
- Security Standards

Architectured Services
- Initial Services
- Collaborative Services
- Business Services
- Measured Business Services
- Optimized Business Services

Business Events
- Integration and Transformation Services
- Event Services

Presentation Services
- Case Management Services
- Business Process Management Services
- Business Rule Services
- Object Persistence Services
- Solution Frameworks Development
- BAM
- SAML
- BAN
- WIWI
- e-mail
- HTML / JSP
- UI
- BI
- BI

Security Services
- Identity Management
- Access Control
- Auditing
- Encryption
- Key Management
- Security Policies
- Security Standards