Joint Project Manager Information Systems (JPM IS) Chief Engineer's Overview

"From Science and Technology (S&T) to the Field"

CBIS

January 2007

Dave Godso
Chief Engineer
JPM Information Systems
Joint Program Executive Office
for Chemical and Biological
david.godso@jpmis.mil

Agenda

- **Current Acquisition**

- **Techniques to Improve Transition Success**

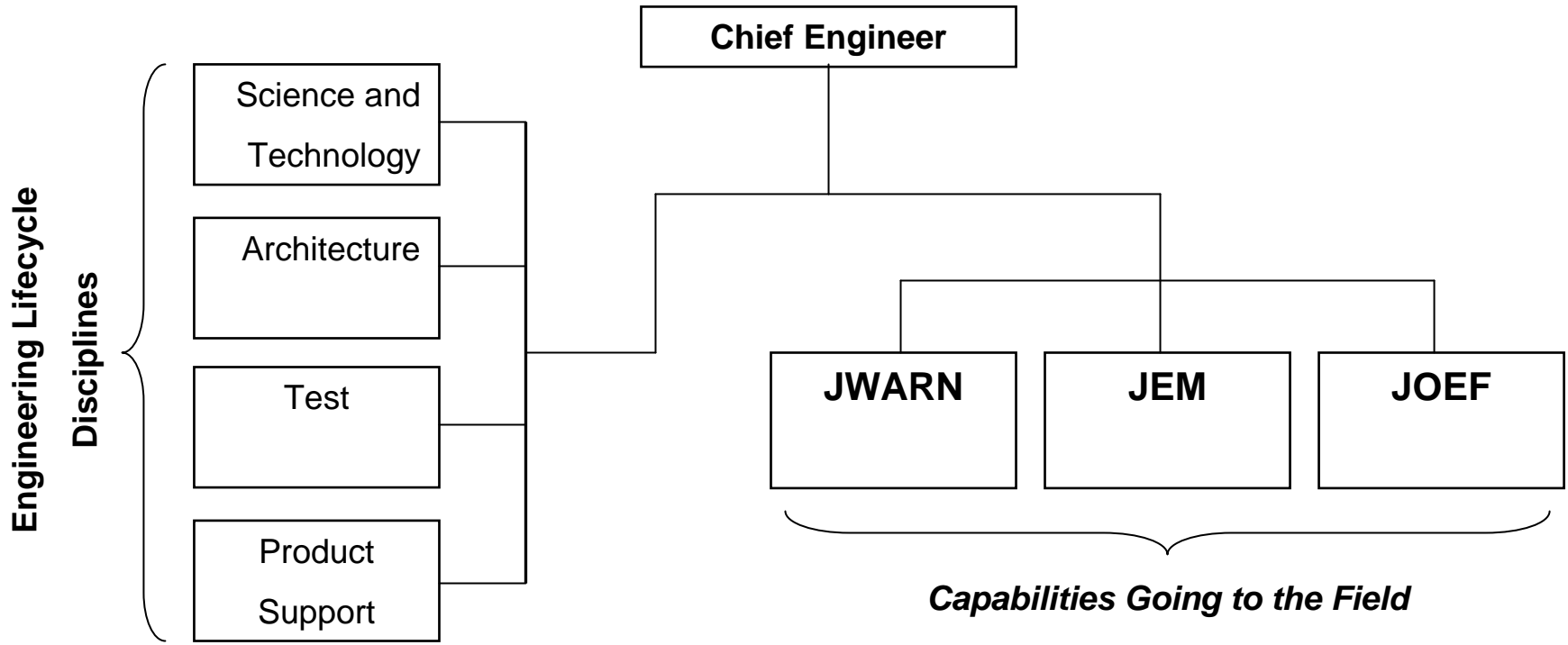- **Challenges and How We Address Them**

Current Acquisition - Mission

Integrating CBRN Information Technology and capabilities with all Service C2/C4ISR systems, environments, and platforms, fielding those capabilities to the Warfighter and supporting the Warfighter

- **Tactical to Strategic**
- **All DoD Military Services**
- **All Echelons**
- **Real-Time Response to Deliberate Planning**
- **One Stop Shop for DoD CBRN Information Technology Warfighter Capabilities**

Current Acquisition - Organization

```
                                    ┌──────────────────┐
                                    │  Chief Engineer  │
                                    └──────────────────┘
Engineering Lifecycle Disciplines
   ┌──────────────────┐
   │ Science and      │
   │ Technology       │
   └──────────────────┘
   ┌──────────────────┐
   │ Architecture     │
   └──────────────────┘
   ┌──────────────────┐        ┌─────────┐  ┌─────────┐  ┌─────────┐
   │ Test             │        │ JWARN   │  │  JEM    │  │  JOEF   │
   └──────────────────┘        └─────────┘  └─────────┘  └─────────┘
   ┌──────────────────┐
   │ Product          │
   │ Support          │
   └──────────────────┘
```

Capabilities Going to the Field

- **Science and Technology –**
  - **Mr. Les Anderson - make transition "tangible" / track / facilitate**
- **Architecture**
  - **Mr. Andy Hill – plan for transition (Architecture/Data, Human Systems Interfaces (HSI), Information Assurance (IA,) C2/C4ISR)**
- **Test**
  - **Mr. Marcus Fieger – are the transitioned products "VV&A"-ed and/or "VV&A"-able?**
- **Product Support**
  - **Mr. Gerald Slonaker – can we train to them and support them?**

Current Acquisition –
Two Points of Transition for CBRN Information Systems

1. **From Science and Technology (S&T) to JPM IS**

2. **From JPM IS to the Field**

- **WANT TO:**
  - **Minimize cycle time to get required new capabilities and updates to existing capabilities to the Warfighter quickly and cost effectively**

  - **Insulate our technology from infrastructure change to the extent possible, so we can maximize the resources spent on CBRN capabilities (e.g. everyone should not be worried about web-services, security, content delivery, mediation, etc)**

- **MUST:**
  - **Standardize our engineering processes and environments to create a more effective cycle from S&T to JPM IS and from JPM IS to the Field (Warfighter)**

Techniques for Improving Transition

- **Common Installation Process / Specifications**
  - **Would like Tech Base to utilize JPM IS emergent product**
  - **Ability to "hook-in" your application/service installation**

- **Common Development Environment / Specifications**
  - **Need well-documented instructions and automated scripts to build and install software**
    - **Accurate and detailed software product / module specifications**
    - **Accurate and detailed software version descriptions and manifests**
  - **Alignment of development tools, languages, and environments to the extent possible and practical**
  - **Cost effective design and development tools**
    - **Maintenance is the most expensive part of the program lifecycle**

Techniques for Improving Transition

- **Software Development Kits**

  - **Same Architecture: Components / Modules / Service Oriented Architecture (SOA) / Protocols**

  - **Same Version of Data Model and Schema**

  - **JWARN - for Plug and Play (PnP) of Sensors and Information Systems Components [NOTE: tracking to Holster and JCID on a Chip Efforts, but should be based on current JWARN protocol]**

  - **JEM - for PnP of HD/HP models into the model harness architecture [First versions of SDK forthcoming.]**

  - **JOEF - for PnP of Consequence Management / Course of Action models and calculators into the JOEF architecture**

Techniques for Improving Transition

- **Minimize intellectual property or restrictions on government use/modification and deployment of software, data, and documentation**

- **Horizontal Integration**
  - **Shared components across programs (SOA) implies TTAs will need to span more than one program of record**
  - **Acquisition strategy updates (Software Product Lines)**

- **Shared Configuration Management Repository between JS&TO and JPM IS**

- **Engage, write bug reports, track them to implementation and closure … JPM IS can always use more proactive eyes-on-product with feedback from the S&T community so we can improve our baseline and the feedback loop**

Challenges and How We Address Them

- **Our Field-target environments are always under development / evolution and pressure to field:**
  - **FBCB2, C2PC, MCS, GCCS-J/-X, etc. [All different schedules.]**
  - **Relationships and agreements, one by one - we provide to all**

- **Tracking to system/environment consolidation over time**
  - **[FBCB2 => JCR/JBCP, FCS Platforms], [C2PC => JTCW], [GCCS-X => NECC], etc.**
  - **Day to day involvement and having a voice, vice reacting**

- **DoD Fielding Alignment**
  - **We are Joint but we must field to all four Services and their Service specific systems / hosts / environments (SoA)**
  - **Dedicated presence in the Army Software Blocking (ASWB)**

Science & Technology Folks: If You want to know where we are going and when, look no further than the target environments and platforms to which we must field, mapped against the requirements of an "Increment" of a particular program.

Challenges and How We Address Them

- **Silver-bullet mentality… "SOA", "Web-Services", "XML", "Net-Centric"**
  - **Architecture, Data Management, Configuration Control**
  - **Stability & Control of Interfaces ("schemas", APIs, etc.)**
  - **Don't loose sight of basic good systems engineering practices and software design principles**
- **Provide different capabilities at all levels of echelon**
  - **Modular and configurable approach for services / software**
  - **Many agreements put in place with each Service target/platform**
- **Availability (horsepower, bandwidth, connectivity) –**
  - **Much of what we do in CBRN missions is at the tactical level**
  - **Meet net-centric enterprise tenants, but also work with the resources available at the tactical level**
  - **Parallelization and incremental calculations going forward**

Challenges and How We Address Them

- ## You're Done!

  - ### In software, if you are ever "done", then you must:

    - **Be irrelevant**

    - **Be out of business**

    - **Have legacy code that will likely never change (e.g. RS-232 protocol)**

  - ### Emerging technology, standards and greater DoD / DISA continue to change and we must always respond to that change to maintain compatibility and relevance and superior capability...

  - ### At JPM IS we want to build infrastructure which insulates us from changes to the extent possible, so we can focus resources on CBRN capabilities, but must still respond to all to which we field

> *CBRN Information Technology is not Done… We're Just Getting Started… Our Relationship with the Tech Base is Critical to our success going forward!*

Points of Contact

Mr. David Godso, JPM IS Chief Engineer

david.godso@jpmis.mil

Mr. George Johnson, JPM IS Deputy Chief Engineer

george.johnson@jpmis.mil

Mr. Les Anderson, JPM IS S&T Manager

les.anderson@navy.mil

Mr. Andy Hill, JPM IS Architecture Lead

andy.hill@jpmis.mil

Mr. Marcus Fieger, JPM IS Test Lead

fieger@spawar.navy.mil

Mr. Gerald Slonaker, JPM IS Product Support Lead

gerald.slonaker@jpmis.mil