A Framework for Resource and Execution Management

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Decision Support Systems for C2
Collaborative Planning and Logistics

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Asset Visibility (AV) Concept

- “..Asset Visibility Capability combines the elements of **data synchronization** of ERPs, enhanced information capability to support logistics decision-making and support to planning through process and technology solution…”

- AV is the ability to know the identity, location, status, and condition of assets in the logistics chain at the operational level.

- “.., the AV capability within DND/CF still remains a deficiency because of the **lack of interoperability** across the various systems that that provide the asset information.”

- NATO: An asset can be described as:
  - Unit (example, HMCS Toronto, 427 Sqn,..etc), Personnel; and Materiel/Equipment
TRV-Purpose

- Resource visibility during planning and operations execution at operational HQs (e.g., CANADA COM, CANOSCOM,..) and

- Analyse and perform measurement of resources employment and usage including operational readiness estimation, forecasting,..

EMPA-Purpose

- Collaborative monitoring and reporting on plan execution at different levels of command;

- Plan adaptation and planning support.

- Enable distributed collaborative monitoring and management of current operations at different levels of command.
TRV – EMPA modules

EMPA

Support logistics for decision-making

ANALYSIS

CoPlans

Support to planning

Contingency Plans

Yello Box, From document Statement of Capability Deficiency, ASSET VISIBILITY INTERIM CAPABILITY, 28 January 2008
Comprehensive AV, Asset State

From document Statement of Capability Deficiency, ASSET VISIBILITY INTERIM CAPABILITY, 28 January 2008
Operational Readiness (1)

ASSET TRV PROFILE

OPERATIONAL READINESS

Combat Readiness Capabilities (C2, Sense, Act, Sustain, Shield)

Logistics Readiness (spare parts, ammo, rations, POL)

Personnel Readiness (manning, qualifications, training, effectiveness)

LOCATION SUITABILITY AVAILABILITY
Operational Readiness (2)

Operational Readiness is an overall status assessment of a unit or asset’s capability to be used for a military operation taking into account its combat readiness or war-fighting capabilities, its logistics readiness and its personnel readiness.

Asset’s combat readiness: ability to exercise command and control (ie to communicate, to issue and receive orders), to sense (ie to use its sensors) to act (ie to move and to use its weapons systems or other non-kinetic capabilities) to shield (ie to defend itself, its operators and its allies or other friendly forces), and to sustain (ie to maintain its other capabilities with POL, spare parts, rations, etc).
Interaction Between TRV-EMPA

**EMPA**

- **Release resource**
  - Release Specific Resource

- **Assign specific resources**
  - Get Available Specific Resources
  - Reserve Specific Resources
  - Update specific resource usage

- **Retrieve resource status**
  - Get Resources Status
  - Update specific resources status

**TRV**

- **Release resource**
  - specificResourceRef, releaseType
  - Update resources availability

- **Assign specific resources**
  - genericType, minQty, maxQty, operationLocation, startTime, endTime
  - List<Resource>
  - Produce available specific resources list
  - specificResourceRefsList
  - Update resources availability

- **Retrieve resource status**
  - specificResourceRefsList
  - List<ResourceStatus>
  - Produce specific resources status
  - Update specific resources status
Assets Visualization Features (1)

- Visualization of assets from several DND sources and applications.

- Monitoring of military assets and retrieval of detailed information of specified assets (by location, status, etc.).

- Analysis of the aggregated/extracted information to:
  - Conduct measurements such as: cost estimation, impact analysis, combat readiness, logistic readiness, personnel readiness, etc.
  - Elaborate capabilities that support operational planning.
Assets Visualization Features (2)

- Drill down through mission details
  
  **Scenario:** Availability of Plan >> Assets support >> Particular Asset details

- Navigating through mission commands
  
  **Scenario:** JTFs >> ORBATs >> Assets on ORBATs >> Asset Details

- Navigating through bases
  
  **Scenario:** Wing >> Squadron >> Assets on Squadron >> Accountable JTF

- Monitoring of assets
  
  **Renewable Assets Monitoring**

- Information sharing and integration capabilities
Visualization hierarchy model of “Total Assets Visibility” solution
Drill Down through Missions (Slide 1)

Monitoring Strategic Assets, such as: Polaris

Click for Contingent Operational Plan (COP) A6 details.

Selected JTF Area
Drill Down through Missions (Slide 2)

Viewing Asset classes engaged in COPA6 plan.

Selected IROQUOIS-Class Destroyer.

Click for all specific assets of this class.
Drill Down through Missions (Slide 3)

Selected HMCS ALGONQUIN-283

Viewing particular IROQUOIS-Class Destroyer for COPA6

Click to view senses of HMCS ALGONQUIN-283
Drill Down through Missions (Slide 4)

Viewing senses of HMCS ALGONQUIN-283
Navigating through Mission Command (Slide 1)

Viewing all ORBATS for JTF-Pacific
Navigating through Mission Command (Slide 2)

Selecting assets under ORBAT1 of JTF-Pacific

Available filtering capabilities on information.
Navigating through Mission Command (Slide 3)

All assets under ORBAT1 of JTF-Pacific
Navigating through Military Bases (Slide 1)

- Air Force Wings
- Military Depots
- Navy Bases

Drill-down to the squadrons of 19Wing
Navigating through Military Bases (Slide 2)

Viewing squadrons of 19Wing, See the runway!!!

Selected 410 Squadron of 19Wing.
Navigating through Military Bases (Slide 3)

All assets of Canadian Air Force under Wing19
Assets Monitoring

Projected paths of operations

Monitoring of some of the military assets, such as: Hornets, Buffalo aircrafts, IROQUOIS class destroyer.
Conclusion - AV benefits

• Decrease in the number of systems that may have to extract information from or send information to;

• Automated data capture: efficient recording of asset information, increase the efficiencies within DND SC, improve business functions, ...

• Efficient management of logistics chain & Re-direction of assets to meet urgent/critical needs..

• Task-tailored support elements: flexible and adaptive C2 systems.

• Improved information survivability: integrated repositories.

• "Ability to fuse up-to-date and accurate operational and support/logistics information in order to enable operators to achieve COP of the sustain situation``.

• An ability for multinational (and other Gov. insti.) interoperability: combined operations with US, NATO and Allies.
Questions ?
Most important assets (1)

• Major assets: assets in which military operational planners, ops centre watch keepers and commanders have the most interest with respect to their location, availability and suitability.

• “any vehicle or appliance that can be used to provide C2, communications, intelligence, surveillance or reconnaissance support or transport, shelter or logistics support in the conduct of military operations”.

• Assets that are of importance to operations planners and monitoring staffs