



## **Common Operating Picture enabling Coalition Interoperability**

**John L. Barry, Major General USAF (Ret),**

**David Lincourt, Hans Peukert**

**SAP AG**

# Agenda

## Defining Common Operating Picture

COP Issues & Pain Points

COP Best Practices & Trends

Solution Overview & Positioning

Illustrative Scenario

Solution Benefits

# What are the Elements of a COP?

## Achieving Situational Awareness

### Awareness of Enemy & Friendly Forces

#### Enemy & Friendly Forces

- Commander's intent
- Location
- Status
- Available courses of action and predicted actions for enemy forces

### ... and the Environment...

#### Environment:

- The environment
- Operations and enemy options
- Terrain features such as trafficability
- Canopy, sight lines, and sea conditions

### ... resulting in situational awareness

#### Common Operating Picture

- Predictability
- Informed courses of action
- Risk mitigation
- Task organization
- Distributed operations
- Achievement of desired effects

**Source:** NETWORK CENTRIC WARFARE, Alberts, Garstka, Stein, 1999

# Agenda

Defining Common Operating Picture

**COP Issues & Pain Points**

COP Best Practices & Trends

Solution Overview & Positioning

Illustrative Scenario

Solution Benefits

# Deficiencies in Achieving the Common Operating Picture

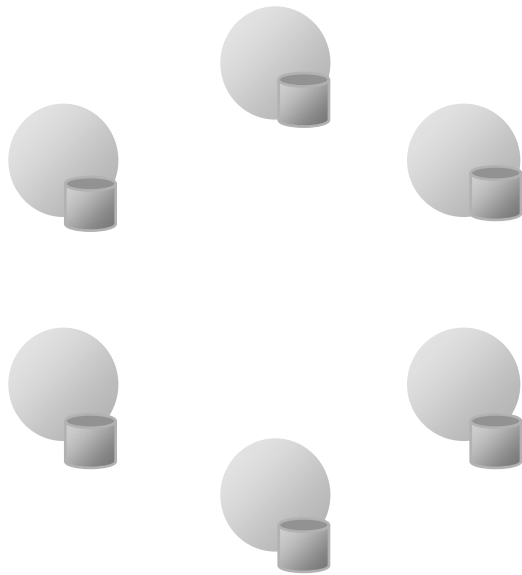
Current Deficiencies	Key Observations
Limited Logistics Visibility	<ul style="list-style-type: none"><li>■ Decisions handled in separate systems</li><li>■ Decisions based on incomplete data</li><li>■ Difficulty on making capability based decisions</li><li>■ Ad-Hoc and Improvised logistics</li></ul>
Legacy System Environment	<ul style="list-style-type: none"><li>■ Closed and incompatible systems</li><li>■ Inability to upgrade individual components</li><li>■ High Total Cost of Ownership</li><li>■ Based on existing concepts of operations</li></ul>
Passive Interaction	<ul style="list-style-type: none"><li>■ Need to pull information</li><li>■ Lack of drill-down, drill-across and free navigation</li><li>■ Inability to determine impacts</li><li>■ Inability to initiate action in real time</li></ul>
Historical Based Data	<ul style="list-style-type: none"><li>■ Uncertain future posture</li><li>■ Actions are reactive rather than pro-active</li><li>■ Difficult to correlate historical data to current events</li></ul>

**Source: Objective Assessment of Logistics in Iraq**

# Models Are Changing... Shared Knowledge for Situational Awareness

## COP Genealogy

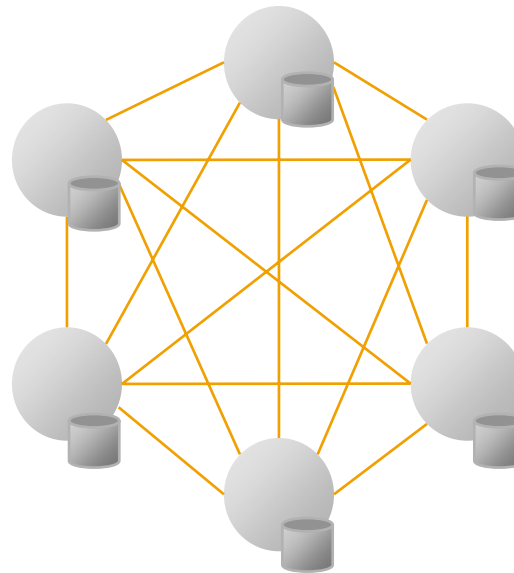
**Resourcefulness**



### Human Integration

Integration by manually collating data

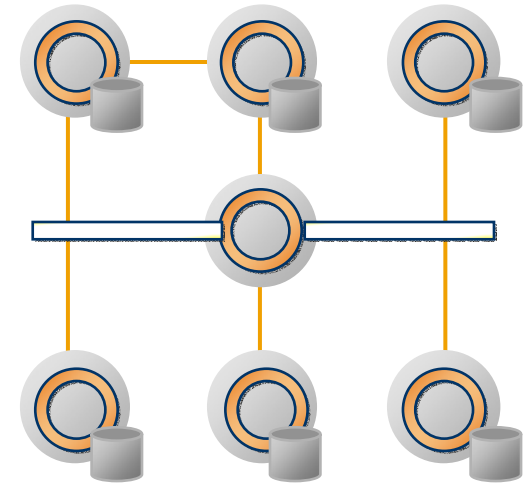
**Co-operation**



### Direct Connections

Integration nightmare with inflexible communities

**Collaboration**



### Net-Centric Environment

Shared knowledge and flexible communities

# Agenda

Defining Common Operating Picture

COP Issues & Pain Points

**COP Best Practices & Trends**

Solution Overview & Positioning

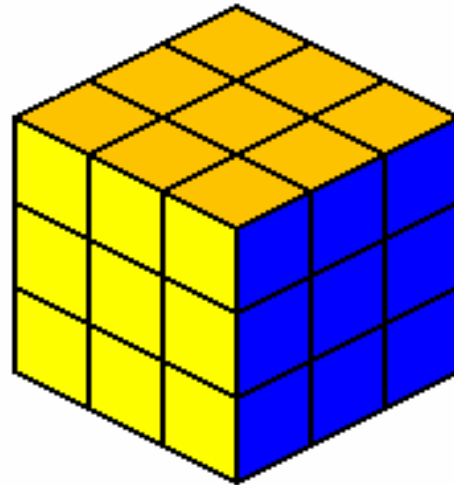
Illustrative Scenario

Solution Benefits

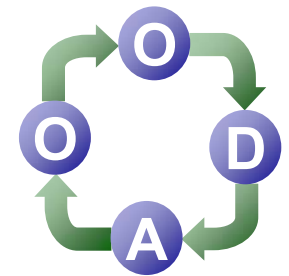
# ■ The Objective – COP & Decrease the Decision Cycle Time

*At the most fundamental level, the objective is to create situational awareness leading to reduced decision cycle time ...*

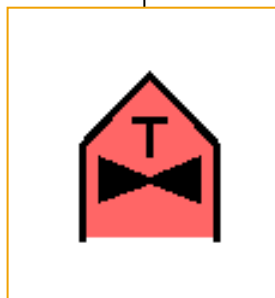
The Common  
Operating  
Picture



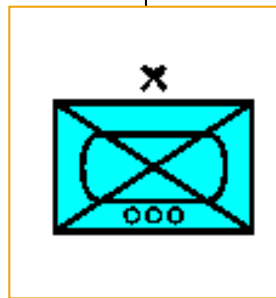
Tight OODA  
Loop



Reduced Decision  
Cycle Time



Enemy

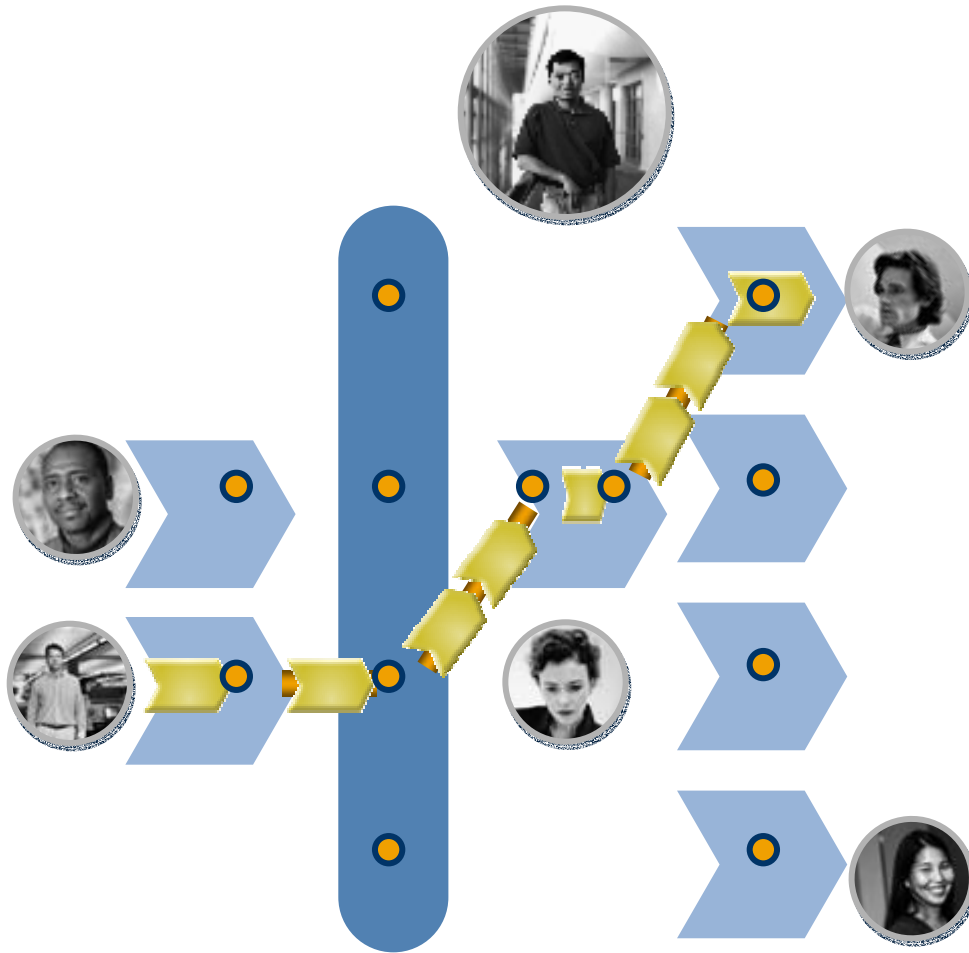


Friendly



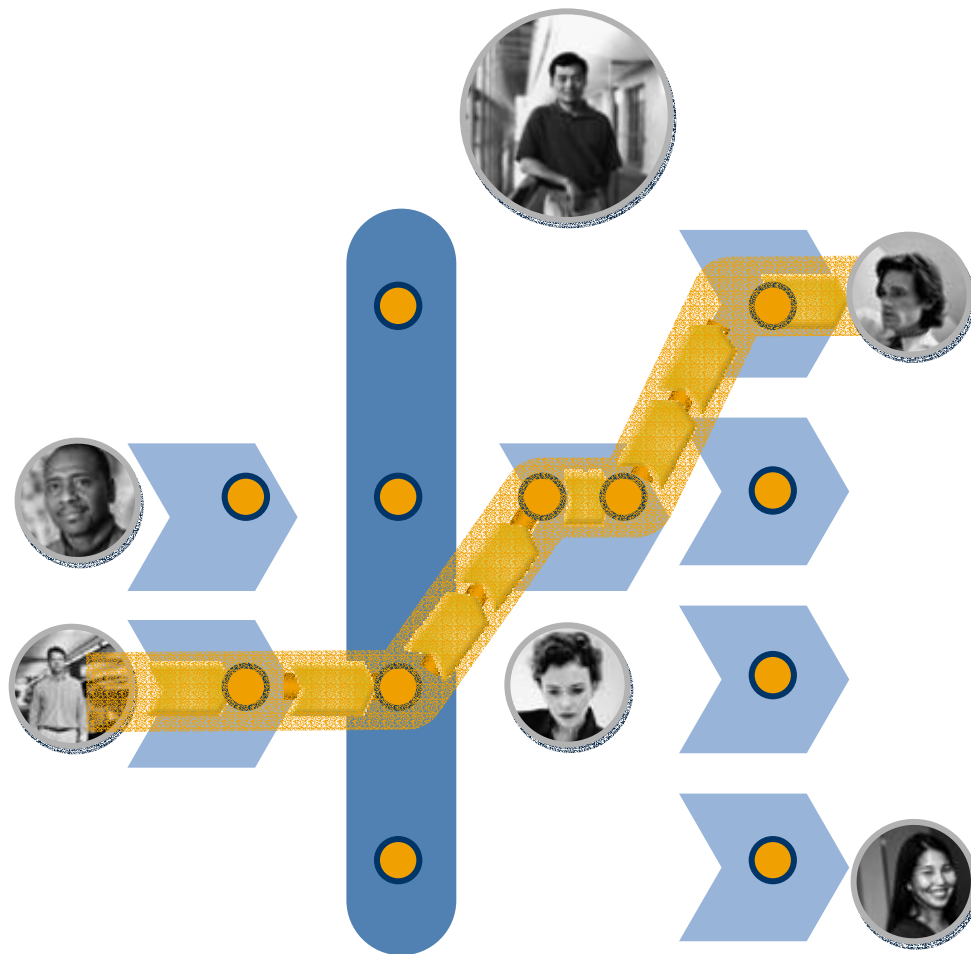
Environment





**Empowering  
Coalition  
Forces...**

**...linked by  
“soft-wired”  
end-to-end  
processes**



**Model Based**

**Event Driven**

**Embedded Analytics**

**Service Enabled**

# COP Best Practices and Trends

Operational Condition	Best Practice & Trends
Expeditionary warfare	<p>Integrating data and collaborative within the services and commands as well as among the coalition partners in a net-centric environment</p> <p>Systems designed, tested, and developed to support a mobile, agile warfighter</p>
COP down to tactical units	<p>COP systems need to communicate &amp; sync with rear support units 24/7</p> <p>Includes process visibility with automated event notification and response tools for plan deviations</p> <p>Integration of strategic logistics information</p>
Sensor rich environment	<p>Extend RFID to the warfighter</p> <p>Integration with on-board diagnostic &amp; predictive systems</p>
Combatant Commanders as the locus of control for logistics in support of deployed forces	<p>Planning tools to incorporate OPLAN</p> <p>End-to-End planning</p> <p>Fusion of Operational &amp; Logistics data</p> <p>Application of control mechanisms</p>

**Source: Objective Assessment of Logistics in Iraq**

# Agenda

Defining Common Operating Picture

COP Issues & Pain Points

COP Best Practices & Trends

**Solution Overview & Positioning**

Illustrative Scenario

Solution Benefits

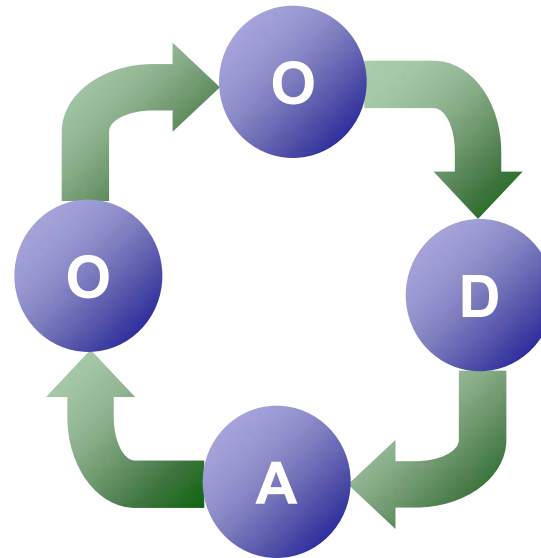
# What: ... Common Operating Picture Solution ...

## 2. Orient

- Collaboration rooms to bring together experts
- Integrate with predictive and simulation tools
- Geo-spatial representation of courses of action
- Document and application sharing for option analysis

## 1. Observe

- Geo-spatial representation of COP
- Fusion in layers of enemy, friendly and environment data
- Drill-down, drill across
- Highly integrated alert-based framework



## 3. Decide

- Message and workflow based promulgation of decisions

## 4. Act

- Integration with logistics execution systems
- Monitoring & Control of the logistics plan

## 5. Learn

- Knowledge management repository
- E-Learning

# How: ... Build on Enterprise Services Architecture



## Composites

### Composition Platform

### Service based

- Transformation
- Next “best defense practice”
- Custom built or composed

- Process integrity
- Packaged solutions
- Open Standards

**Process is captured in a coherent, easy to change composite application**

# Agenda

Defining Common Operating Picture

COP Issues & Pain Points

COP Best Practices & Trends

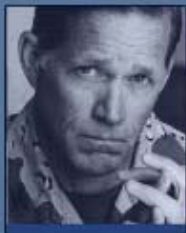
Solution Overview & Positioning

**Illustrative Scenario**

Solution Benefits

## SAP for Defense & Security - Common Operating Picture Operational Sense & Respond Logistics

### ● Benefits



Operation Swashbuckler is launched in response to a hostage situation where a group of Non-Government Organization (NGO) employees are taken hostage by a group of insurgents. Elements of the 1st Special Forces Operational Detachment-Delta are assigned and currently in route from Frankfurt, Germany when the insurgents execute the first hostage and make additional demands. In response, the H-Hour of the mission is advanced, and using SAP software the OODA (Observe, Orient, Decide, and Act) loop begins.

**Observe**

**Orient**

**Decide**

**Act**

**Learn**

- GIS Drilldown
- PSA
- Alert
- GIS Drilldown

- Collaboration Room

- Workflows

- GIS Drilldown

- Lessons Learned



# Commanders Portal with Traffic Lights ...

**Map**  
Select mission Operation Swashbuckler Help

**Intelligence Summary**  
**Commander's Intent**  
**Equipment Status**  
**Ammunition Status**  
**Personnel**  
**Fuel Status**

**My Layers**  
Number of layers: 6  
☒ Friendly Forces  
☒ Enemy Forces  
☐ Air Targets  
☐ Ground Targets  
☐ Obstacles  
☐ Weather  
Select all Deselect all Delete Add

**Legend**  
**Combat Effectiveness**

	Range
	Greater than 80%
	60% - 79%
	40% - 59%
	39% or less

C:\Program Files\SAP Offline Demos\Public Services\defense\_hostage\Application

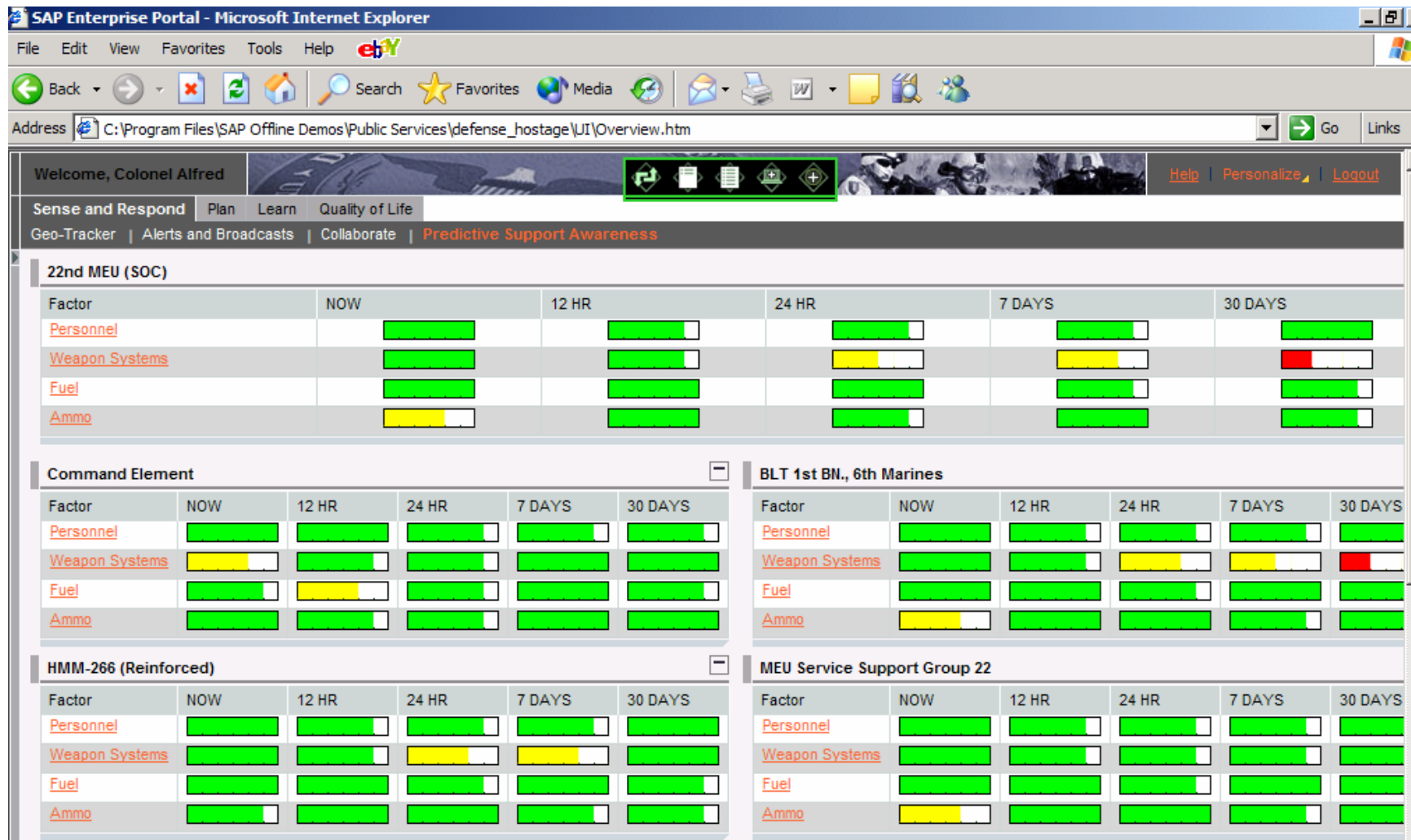
**MEU Commander's Intent: Operation Swashbuckler**

I observe the Caliphate's operational critical vulnerability to be C2. I intend to close with and destroy exploiting the Padang and Tiku ports to seize Pzkanbaru, to pursue enemy remnants relentlessly int

I intend to secure and release seized hostages prior to initiating combat in Pekanbaru

I intend to secure all seized objectives with minimal exposure of supply bases. I further intend to le sustainment to enable our success during and after hostilities.

# Predictive Support Analysis ...



# Coalition Collaboration ...

Welcome, Colonel Alfred
[Help](#) | [Personalize](#) | [Logout](#)

Sense and Respond | Plan | Learn | Quality of Life

Geo-Tracker | Alerts and Broadcasts | **Collaborate** | Predictive Support Awareness

**Team Dashboard**

Team Contacts | Team Calendar | Team Tasks | Discussions

Name	Contact	Role	Collaborate
<a href="#">Colonel Alfred</a>	+1 610 661 1000	MEU Commander	
<a href="#">Major Davis</a>	+1 610 661 1000	S1 (Administration Officer)	
<a href="#">Major Elliott</a>	+1 610 661 1000	S2 (Intelligence Officer)	
<a href="#">Major Turner</a>	+1 610 661 1000	S3 (Operations Officer)	
<a href="#">Major Wagner</a>	+1 610 661 1000	S4 (Logistics Officer)	
<a href="#">Major Paris</a>	+1 610 661 1000	S6 (Communications Officer)	

**Expert Search**

**Saved Searches**

Name	Saved by	Date
<a href="#">Alternate Team Options</a>	Major Turner	05/23/05
<a href="#">Medical Specialist Options</a>	Major Turner	05/23/05
<a href="#">Helicopter Options</a>	Major Turner	05/23/05

**Team Documents**

View | Folder | Selection | Go To

Documents

Name	Size	Modified	Modified By
Status Reports	56 Bytes	9/25/03 3:44:28 AM	
Maps	7 KB	11/12/03 5:46:00 AM	

**Medical Supplies Needed**

Supplies > 1 Casualties > 2 Patient Conditions > **3 Class VIII Req's** > 4 Confirm

NSN	Description	Quantity	UI
6505-00-137-5891	DIAZEPAM INJECTION,USP	1	PG
6505-00-149-0113	MORPHINE SULFATE INJECTION,USP	1	PG
6505-01-332-9024	PHENYTOIN SODIUM INJECTION,USP	4	PG
6505-01-330-6269	SODIUM CHLORIDE INJECTION,USP	1	PG

**Alternate Team Options**

Order	Ability to Meet Intent	Unit	Location	Remarks	Proficiency	Availability	Total
1		<a href="#">Seal Team 1</a>	<a href="#">USS Peleliu 2°20'S,100°10'E</a>	USS Peleliu			
2		<a href="#">1st Ranger Battalion</a>	<a href="#">Jakarta, Indonesia 6°8'S,106°45'E</a>				
3		<a href="#">22nd SAS Regiment</a>	<a href="#">Port Dickson, Malaysia 2°38'N,101°48'E</a>	Not under operational control			
3		<a href="#">AU SASR</a>	<a href="#">Port Dickson, Malaysia 2°38'N,101°48'E</a>	Not under operational control			

# Agenda

Defining Common Operating Picture

COP Issues & Pain Points

COP Best Practices & Trends

Solution Overview & Positioning

Illustrative Scenario

**Solution Benefits**

# ■ Strategic Benefits of a Common Operating Picture



- Creation of real-time situational awareness
- Compressed decision cycle time  
(e.g. OODA”L”- Loop)
- Increased responsiveness to Commander’s intent
- Creation of predictive assessment of courses of action
- Adaptive Defense Processes in a NETCENTRIC Environment





**For more info ...**

[John.Barry@sap.com](mailto:John.Barry@sap.com)

[David.Lincourt@sap.com](mailto:David.Lincourt@sap.com)

[Hans.Peukert@sap.com](mailto:Hans.Peukert@sap.com)

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft®, WINDOWS®, NT®, EXCEL®, Word®, PowerPoint® and SQL Server® are registered trademarks of Microsoft Corporation.

IBM®, DB2®, DB2 Universal Database, OS/2®, Parallel Sysplex®, MVS/ESA, AIX®, S/390®, AS/400®, OS/390®, OS/400®, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere®, Netfinity®, Tivoli®, Informix and Informix® Dynamic Server™ are trademarks of IBM Corporation in USA and/or other countries.

ORACLE® is a registered trademark of ORACLE Corporation.

UNIX®, X/Open®, OSF/1®, and Motif® are registered trademarks of the Open Group.

Citrix®, the Citrix logo, ICA®, Program Neighborhood®, MetaFrame®, WinFrame®, VideoFrame®, MultiWin® and other Citrix product names referenced herein are trademarks of Citrix Systems, Inc.

HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

JAVA® is a registered trademark of Sun Microsystems, Inc.

JAVASCRIPT® is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MarketSet and Enterprise Buyer are jointly owned trademarks of SAP AG and Commerce One.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves information purposes only. National product specifications may vary.