Naval Tool for Interoperability Risk Assessment (NTIRA)

Presentation to N6M on 09 July 01

Phil Charles
LCDR Sally Van Horn
Rebecca Hartman
Tom Wolfrum
Victor Campbell

Primary NTIRA BAM Requirements

- Automate BAM process. Currently manual and manpower intensive
- Relate authoritative, configuration managed, Battle Force information to BAM decision support
- Manage End-to-End Capability at the Battle Force level
- Determine impact of system(s) level program decisions on ETE capability(s). Show information flow from source to sink
- Identify partial fielding(s) impacts to Battle Force ETE capability
- Provide methodology to identify actual dollars available to support system procurement and fielding

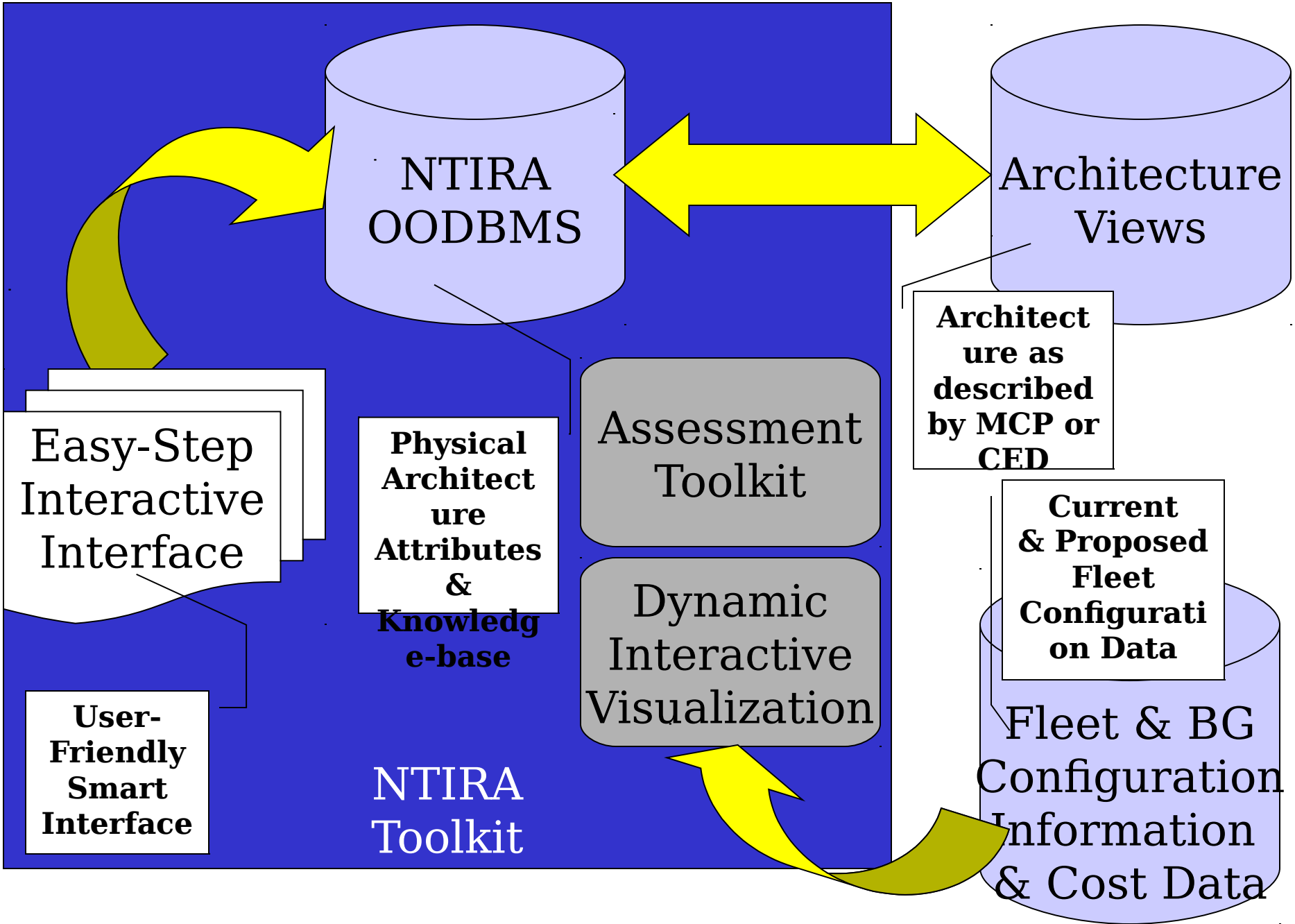
Interviews With CNO N60, CLF N66, CPF N63

NTIRA Goals

- Support assessments by relating resource issues ($) to operational/tactical environment
  - Provide early assessment of how affordability and interoperability risks align with warfighter capability
  - Assess impacts to mission effectiveness when adding or removing capabilities
- Manage, prioritize complex and often conflicting objectives
  - Front end process for prioritization during detailed assessments, with feedback to refine models

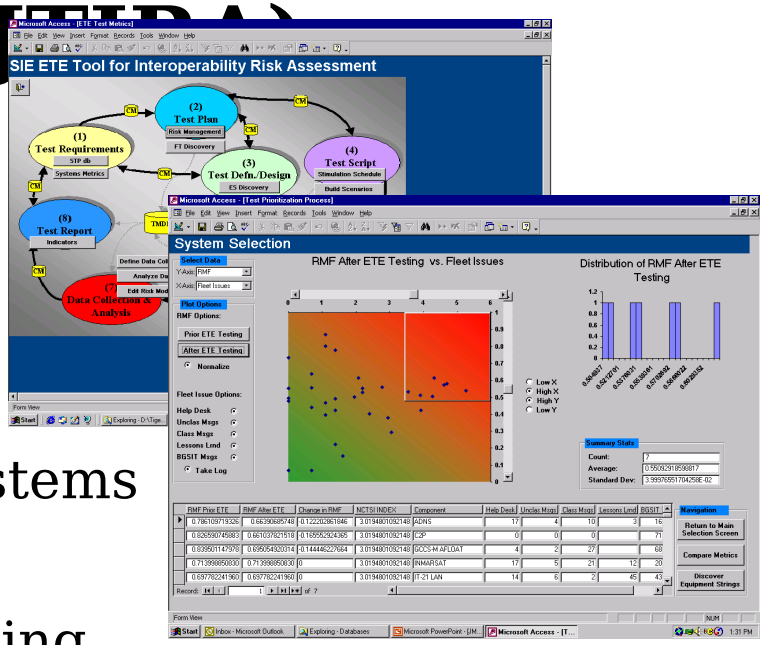
Facilitate identification of leading indicators for cost and interoperability assessments through an analytical process

Vision


NTIRA OODBMS
Architecture Views
Architecture as described by MCP or CED
Easy-Step Interactive Interface
Physical Architecture Attributes & Knowledge-base
Assessment Toolkit
Dynamic Interactive Visualization
Current & Proposed Fleet Configuration Data
User-Friendly Smart Interface
NTIRA Toolkit
Fleet & BG Configuration Information & Cost Data

History and Perspective: Joint Tools for Interoperability Risk Assessment (JTIRA)

Optimize SPAWAR Test Effort to Ensure Essential Fleet Capabilities Continue to Inter-Operate Across Y2K Date Rollover

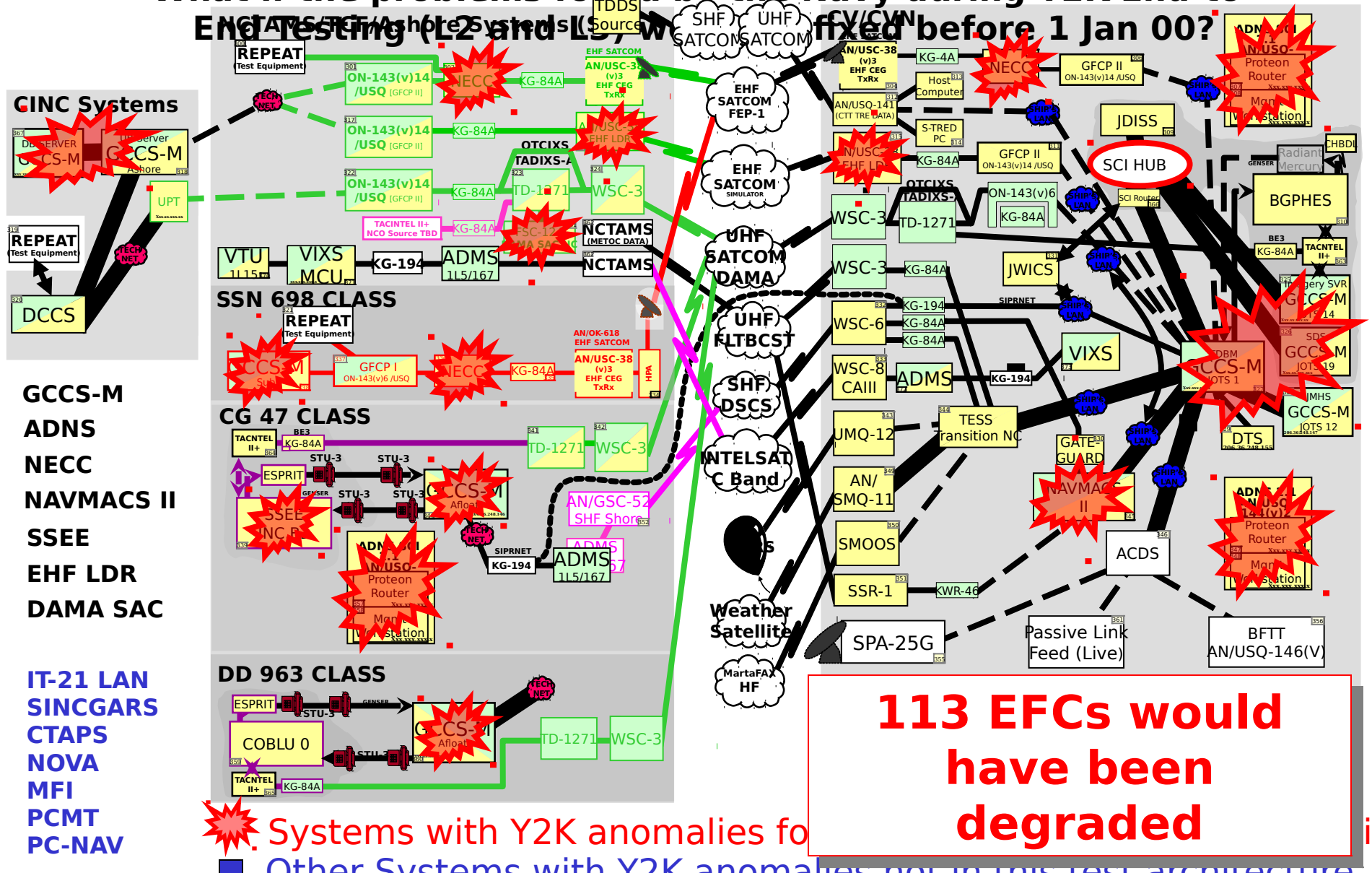


- SPAWAR responsible for 242 C4ISR systems in 12 Battle Force configurations
- Initiated PM web surveys and data mining routines to populate database of system indicators (model focused on rollover failure attributes)
- Implemented CM database, Equipment String definition processes and statistical services to support process
- I

Prioritization Model Based on Y2K System Attributes, Fleet Issues, Test Data, & Mission

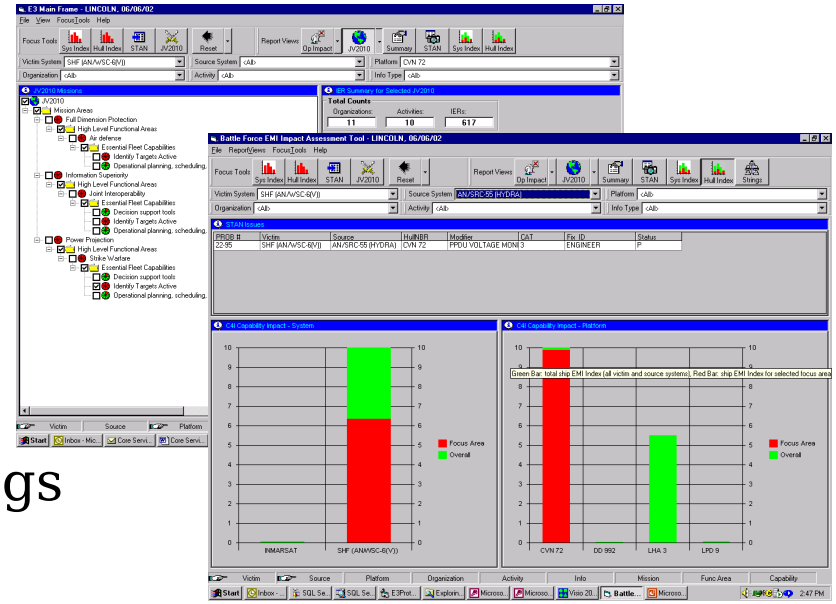
JFK Level 2 (L2) Partial Test Connectivity Diagram

What if the problems found by the Navy during Y2K End-to-End testing (L2 and L3) were not fixed before 1 Jan 00?



BF EMI Impact Assessment Tool (

Mission/Capability Specific Prioritization for EMI Problem Resolution

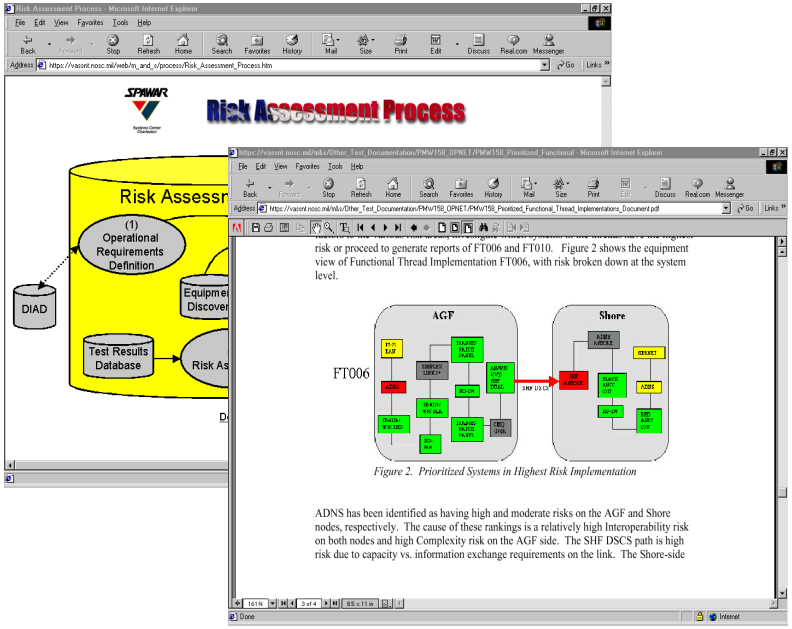


- Leveraged FIRA database and processes to relate potential EMI Victim systems to Equipment Strings to Capability
- Linked Fleet Problem database (STAN) to track and evaluate EMI Anomalies for a given Battle Force
- Mapped to DoN CIO DIAD Operational Activities to prioritize impact based on Fleet Utilization
- Output is a ranking of CAPS & LIMS for EMI Victim Systems

Prioritization Model Based on RF System EMI Attributes, Fleet Anomalies, & Mission

SPAWAR M&S/V&V Process

Optimize SPAWAR M&S/V&V Process using TIRA Methodology as a Pre-Processor



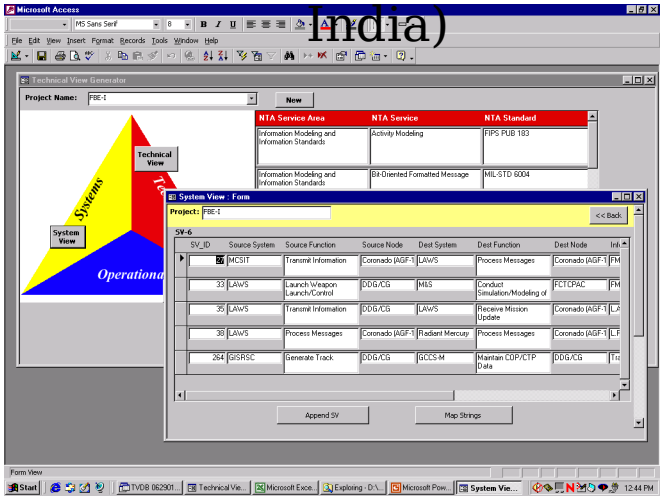
https://vassnt.nosc.mil/web/m_and_s/process/M&S_

- PMW 158 Proof of Concept
  - used Critical Operational Issues to derive a test plan
- Risk Assessment Tool mapped COI to Equipment Strings and IERs (DIAD)
- Risk Model based on Equipment String attributes (Capacity) and the Information Exchanges required of them (Utilization)
- Output is prioritized test plan for M&S/V&V

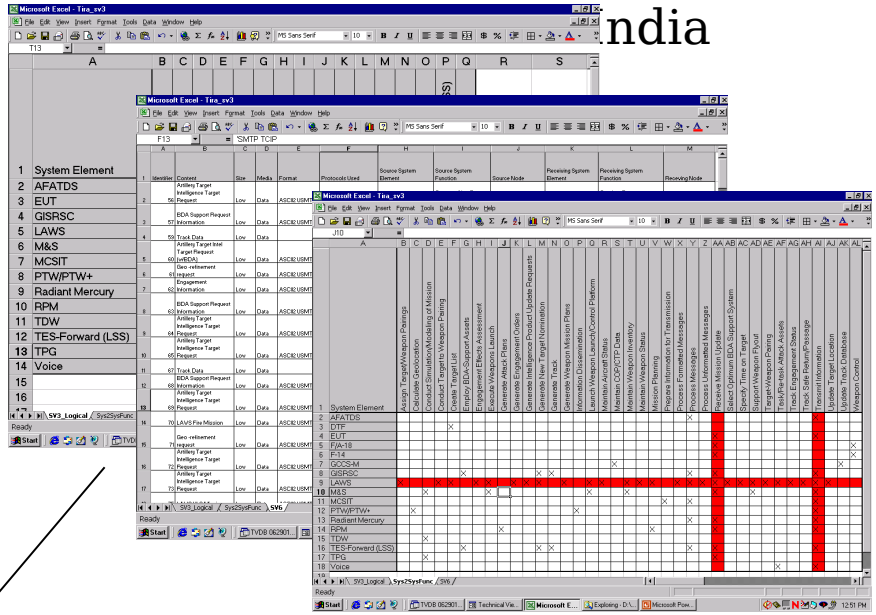
Prioritization Model Based on Network Utilization, Network Capacity, & Mission Capability

Technical Architecture Profile (TAP) & Technical View Data Base (TVDB)

Data Harvesting Tool (MCPs, CEDs, OSDs for FBE-India)



Gap Analysis of System Functions, Interfaces, Interface Protocols, Application Protocols, and Data ...ndia



Gap Analysis Metrics

Gap Analysis Based on Architecture System, Operational, & Technical Data

JTIRA vs. NTIRA Summary

- Same process of analysis; different models used, final product focused to use-case
  - JTIRA Y2K – Test Prioritization, Date Rollover Risk vs. Mission Capability (navy systems)
  - JTIRA EMI IAT – Test/Fix prioritization of RF system, EMI vulnerability vs. Mission Capability (navy systems)
  - JTIRA M&S V&V – Preprocessor to determine where M&S should be used to enhance test data, Network Capacity vs. Network Utilization by mission capability (PMW-158 systems)
  - JTIRA JCOBIAA – Preprocessor to determine where M&S should be used to enhance test data, Security, Timelines, TBD vs. mission capability (Joint systems)

NTIRA - Engineering Assessment tool for Risk and Affordability, Cost vs. Contribution to Mission Capability, Fit vs. Viability, AHP, and other assessments.

NTIRA PURPOSE

- Improve BAM Process Automation
  - Supports N6, Fleet CINCs, IT Central Authority, N8, N7,
  - Supports assessments by relating resource issues ($) and operational/tactical environment
  - Assesses impacts to mission effectiveness when adding or removing capabilities

Core NTIRA Functionality

Analytical Capability to Model an Integrated System using Diagnostic Attributes and Associations of Architecture Elements

- Provide Affordability Assessment through:
  - Capability Gap Analysis
  - Cost Modeling
  - Parametric Interoperability/Performance Risk Modeling
    - C2 Utilization and Capacity focus
- Optimize Affordability Assessment through:
  - Test Results Feedback and Model Refinement
  - Confidence Modeling
  - Diagnostic Sensitivity Analysis (Regression, ROC, et. al.)

CORE Services (1 0f 4)

- Analyze Affordability Tradeoffs
  - Perform Affordability “What-Ifs?”
  - Maximize return on investment subject to user defined objectives and budgetary restrictions
  - Assign Cost factors to Levels of Capabilities
  - Parametric Affordability Modeling, Analytical Hierarchy Process (AHP), et. al.

****This is a First Attempt at Relating Cost Metrics to System and Warfighting Capability***

CORE Services (2 0f 4)

- Analyze Capability Tradeoffs
  - Perform Analytical Capability “What-Ifs?” via System Element Attributes and Known Equipment Strings
  - Perform Tradeoffs based on CED/MCP
  - Assesses impacts to mission effectiveness when adding or removing capabilities
    - ‘Mission Manager’ to view Capability Impact from multiple perspectives (JV2010, IT-21, IWARS, JMA, DRM, OPSITS…)

****Fills a gap between Abstract and Physical Architecture***

CORE Services (3 0f 4)

- Manage Risk and Uncertainty
  - Identify ETE System Interoperability and Integration Risks
    - Assess Interactions across Mission Areas
  - Reduce Uncertainty of Assessments using Statistical Methods
    - Discover System Indicators, Feedback Results, Refine Model
    - Track Confidence in Assessments
  - Discovery and Learning Routines “Remember” Previous Solutions, Enabling “Reuse” in new Architectures

****Most Other Architecture Assessment Tools only Perform Gap Analysis***

CORE Services (4 0f 4)

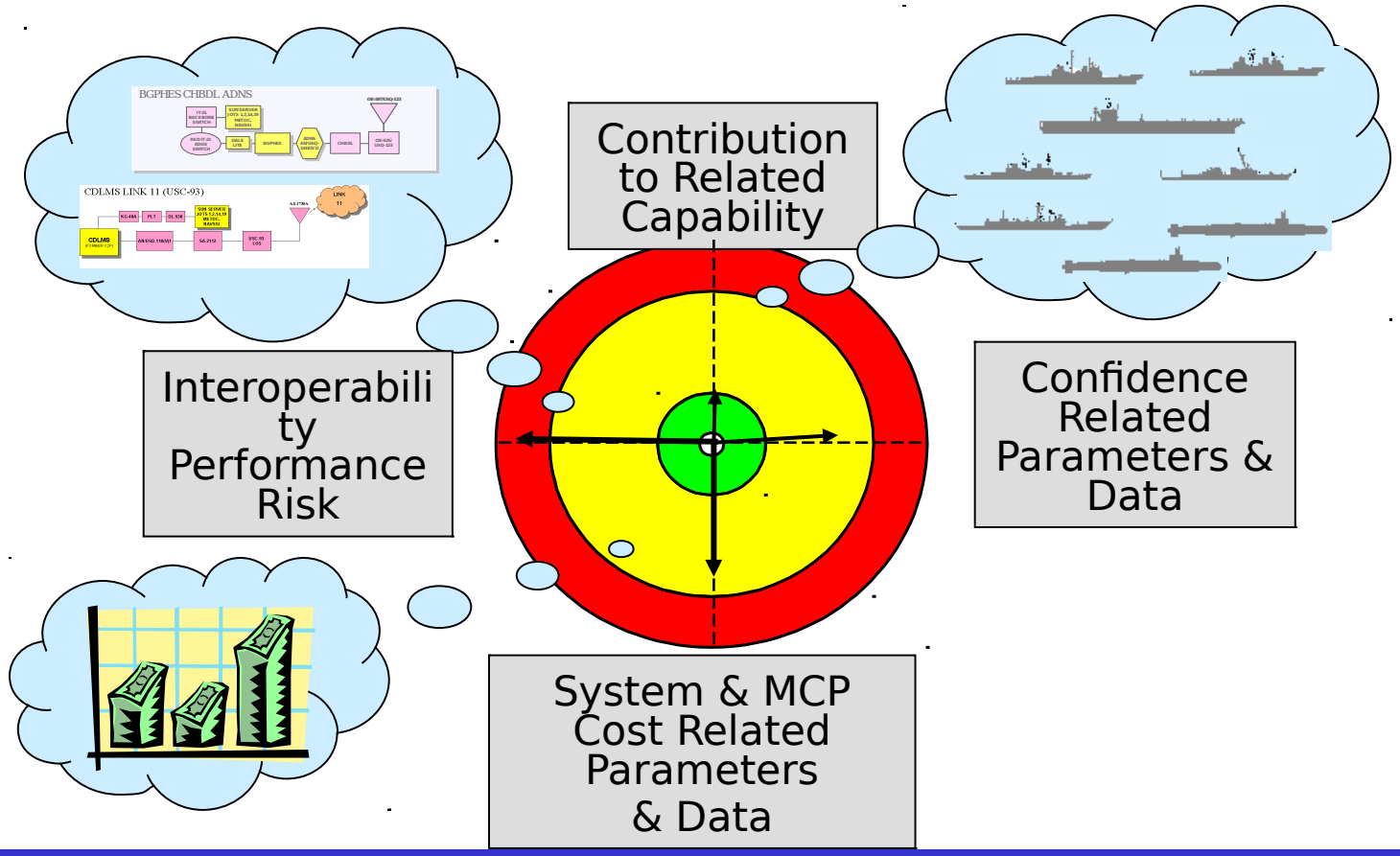
- **Interactive Knowledge Discovery Environment**
  - Collaborative Data Environment for *Import* of Architecture Configuration, Technical, Capability, and Cost Data
  - Interactive “User-friendly” GUI
  - Learn from Previous Architecture Efforts and Re-use

CORE TECHNICAL TENETS

- Web Enabled Navy (WEN) application interface to facilitate enterprise knowledge capture and sharing
- 3-tier architecture with rules to enforce data integrity
- Data Interchange technology to unite disparate data sources
- Optimized learning with KM/KD concepts
- C4ISR Architecture Data Model (CADM) compliance for easy Integration with other DoD architecture efforts
- Modular DII-COE compliant system architecture

Parametric Affordability Modeling

Systematic Assessment of System-Attribute-Mission Alternatives



Better Decision Making with Parametric Models & F

NTIRA Build Plan Summary

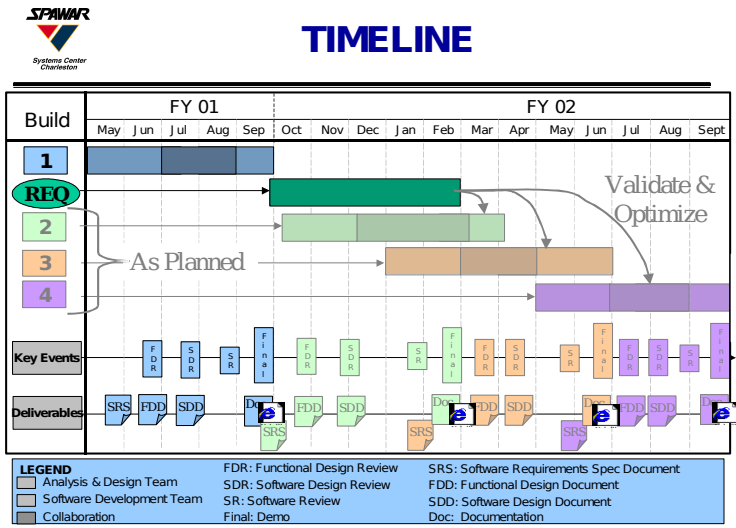
Development Approach:

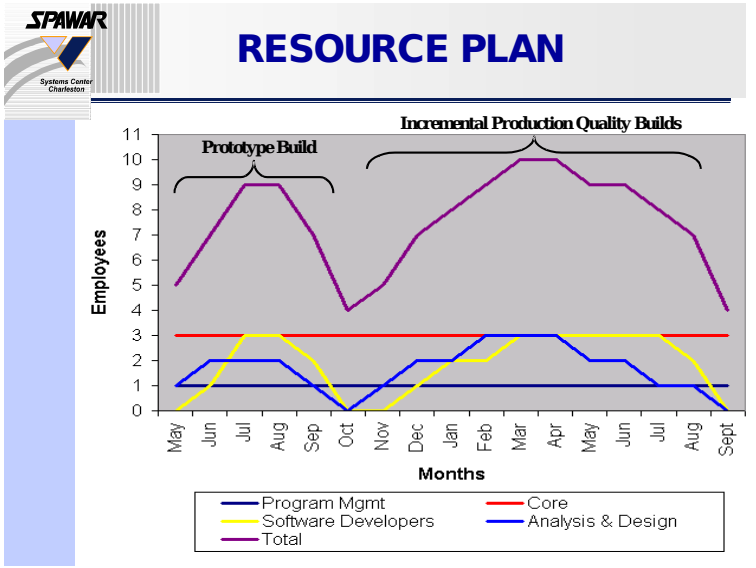
Incremental, Requirements-Driven Design, Development, and Test

1. Database, Data Interchange and Data Entry Interface
2. Equipment String Definition
3. Architecture View Correlation Services
4. Risk Assessment Services
5. Affordability Services

Incremental Builds (Planned)

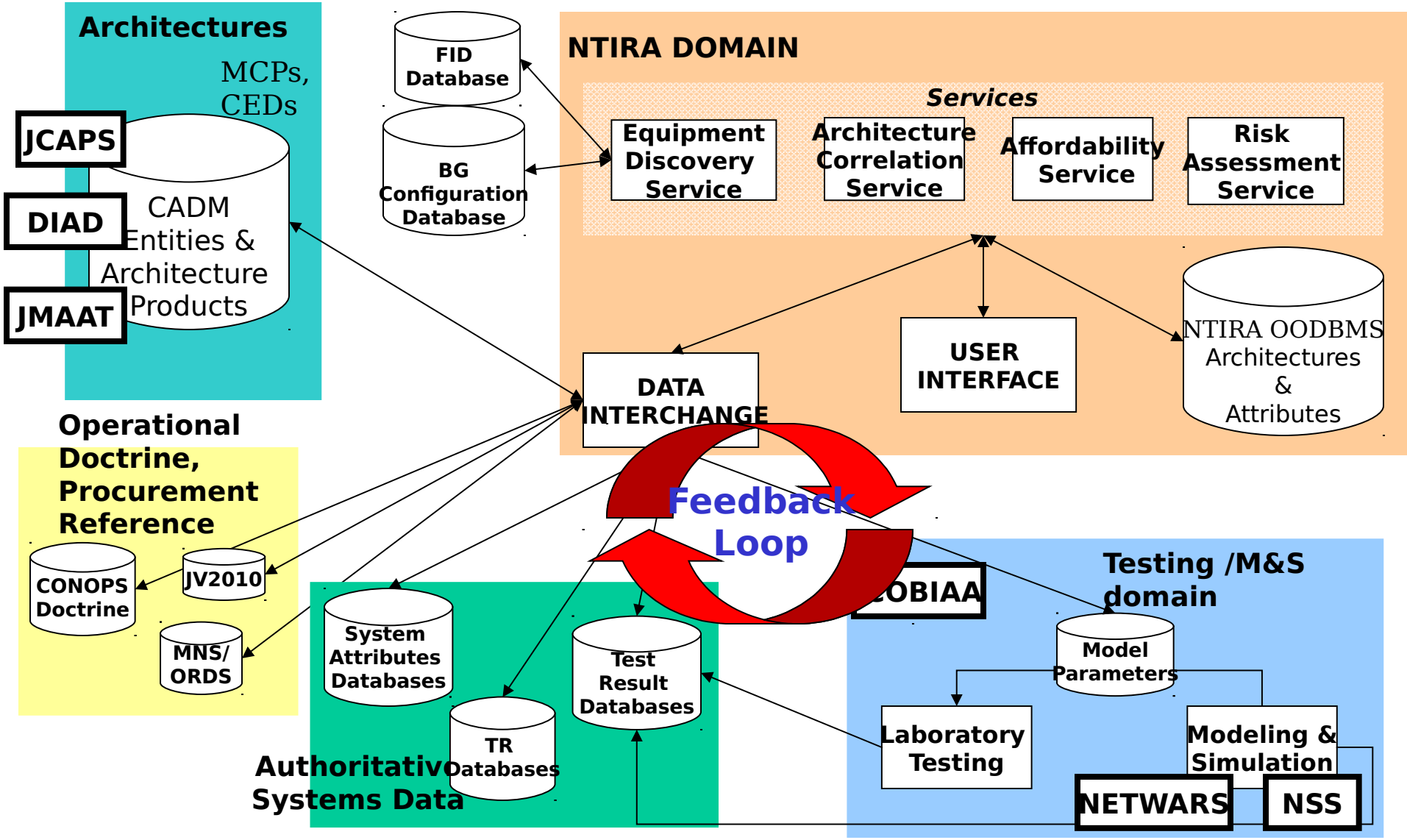
- Develop Early Prototype with On-Site Requirements Development
  - Assign process / analyst to understand BAM process and N6 Initiatives
- (N) incremental builds with increased functionality



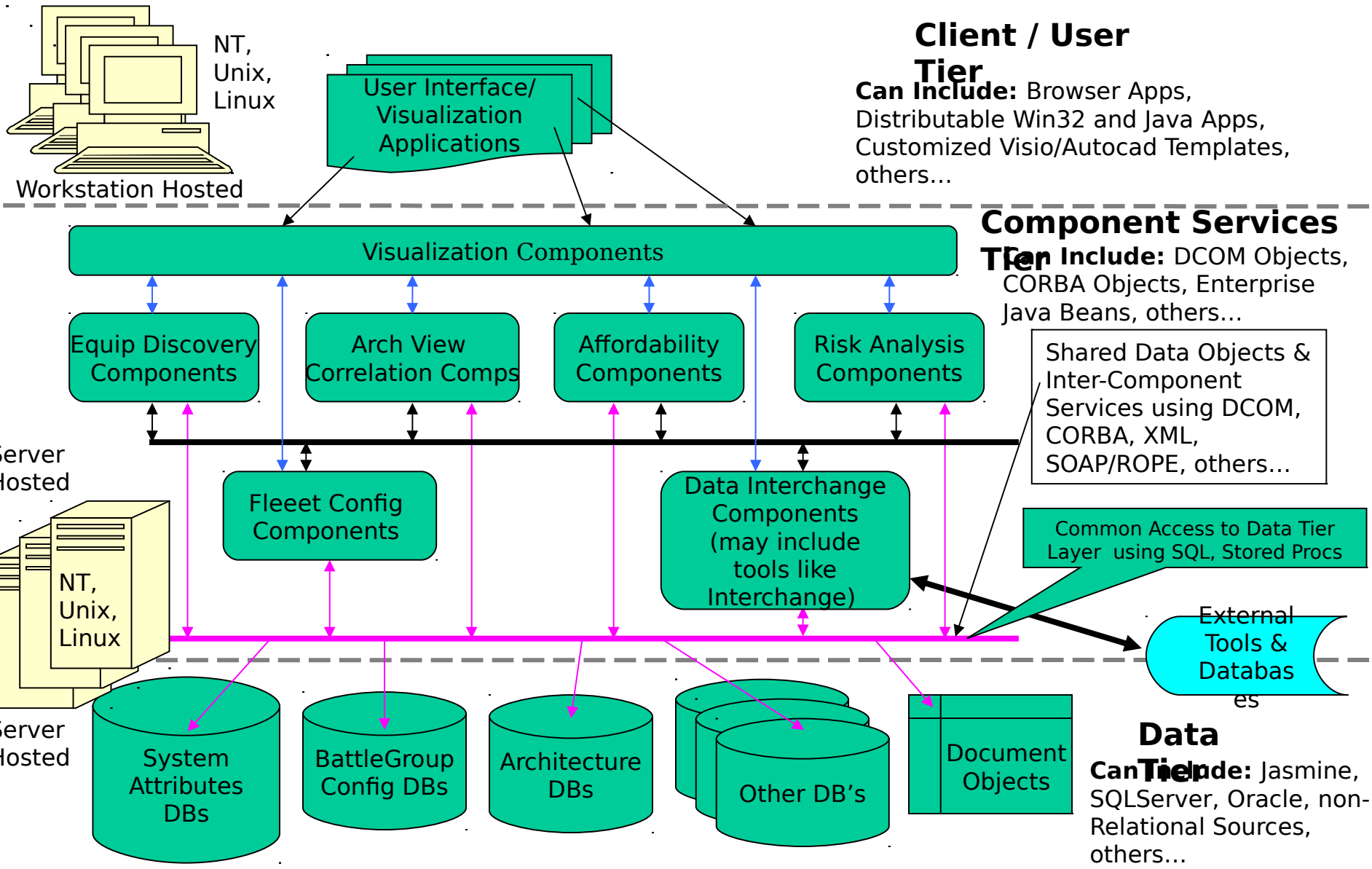


SPAWAR
Systems Center Charleston

NTIRA Vision



NTIRA ARCHITECTURE



Projected End-State

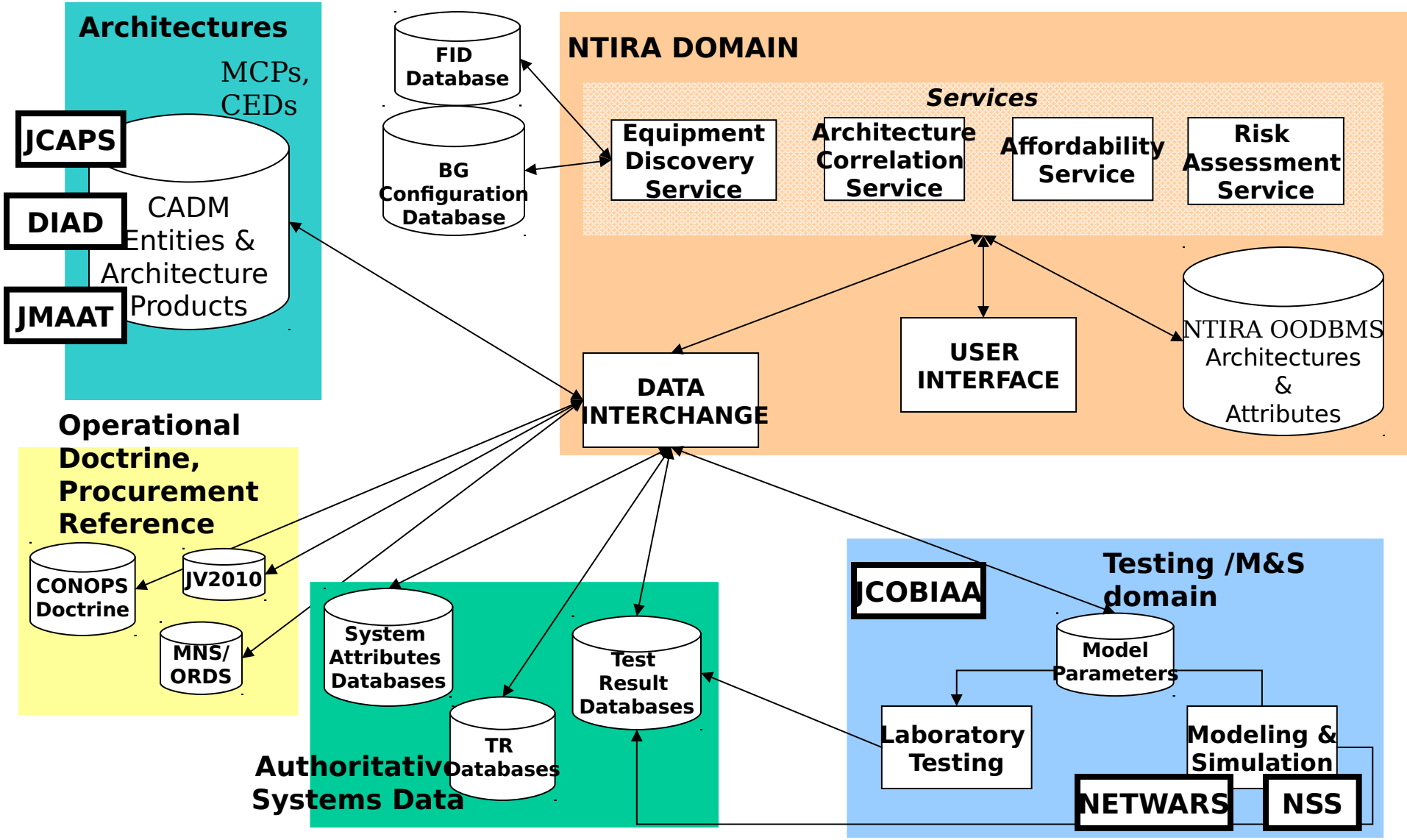
Provide N6M with the Tools to Determine:

- Optimal Procurement Plan(s) given Alternatives and Objectives
- Capability Impact for a given System Funding Decision
- Gaps and Overlaps in Architecture for a given Mission Capability
- Prioritized Systems, Interfaces in a given Architecture with trace-ability to Real Data

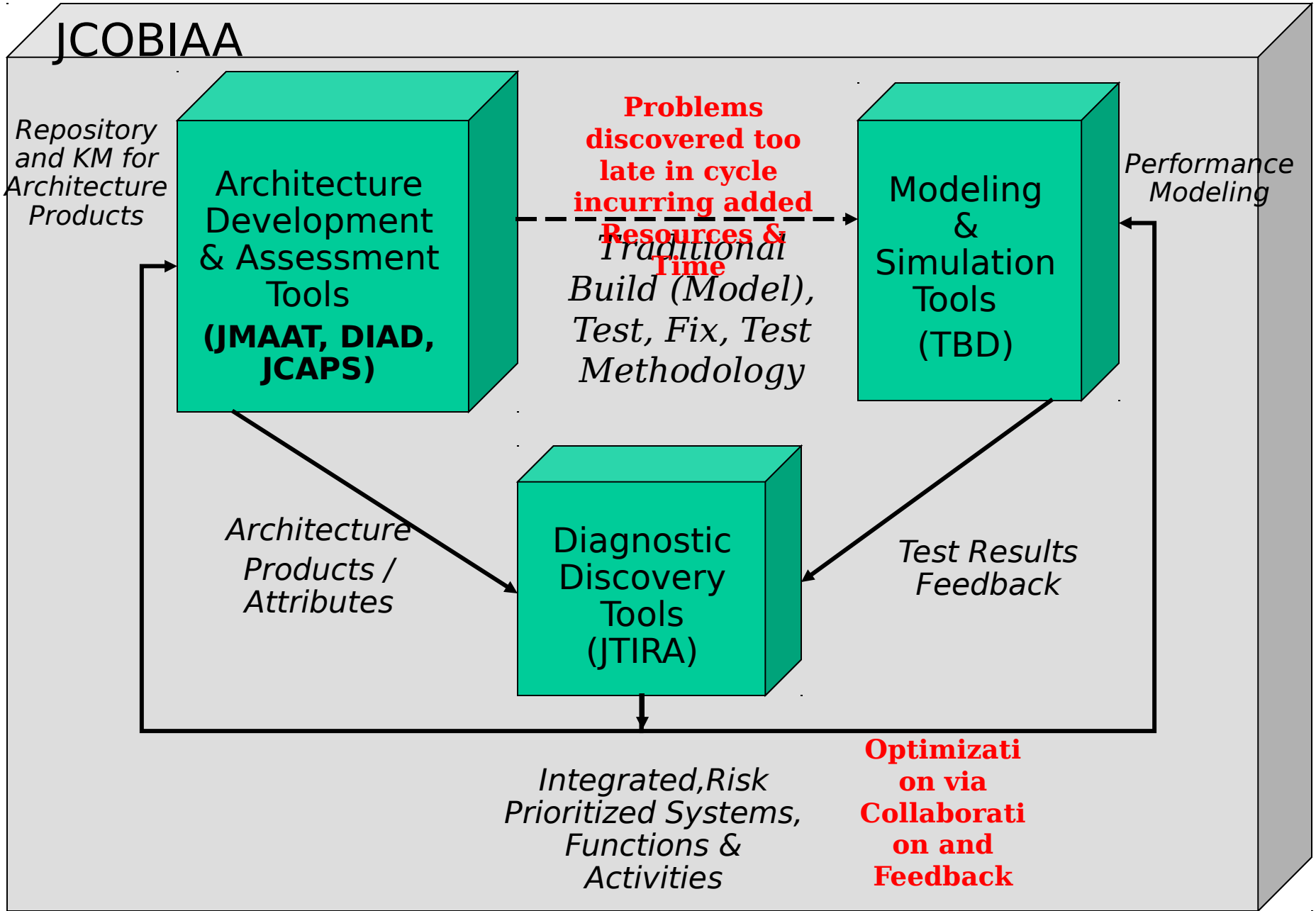
Back-up - NTIRA Interaction

DIAD
JMAAT
JCOBIAA
NETWARS
NSS

Interaction with External Data Sources (Architecture Products, M&S, Testing, Other)



JCOBIAA Integration



More - Backups

Customer/Stakeholder Focus

- N6: BAM assessments of C4ISR/Combat Systems Afloat (IT21) and Ashore ETE capability, BW, etc.
- Fleet CINCs: Prioritize systems and installs
- IT Central Authority: BAM requirements and coordination
- N8: IWARs; assess architectures; assess Capability Evolution Documents (CEDs)
- N70: CED development and integration
- SPAWAR: Implementation

Notional Requirements (1 of 2)

- Relate resource issues ($) to operational/tactical environment Afloat and Ashore (material and non-material)
- Assess Navy resources required to optimize ETE capability
- Support assessments based on 3 defined scenarios
- Assess impacts in terms of IT-21 ETE capability and IT-21 Implementation Plan
- Assess requirements for space based communications

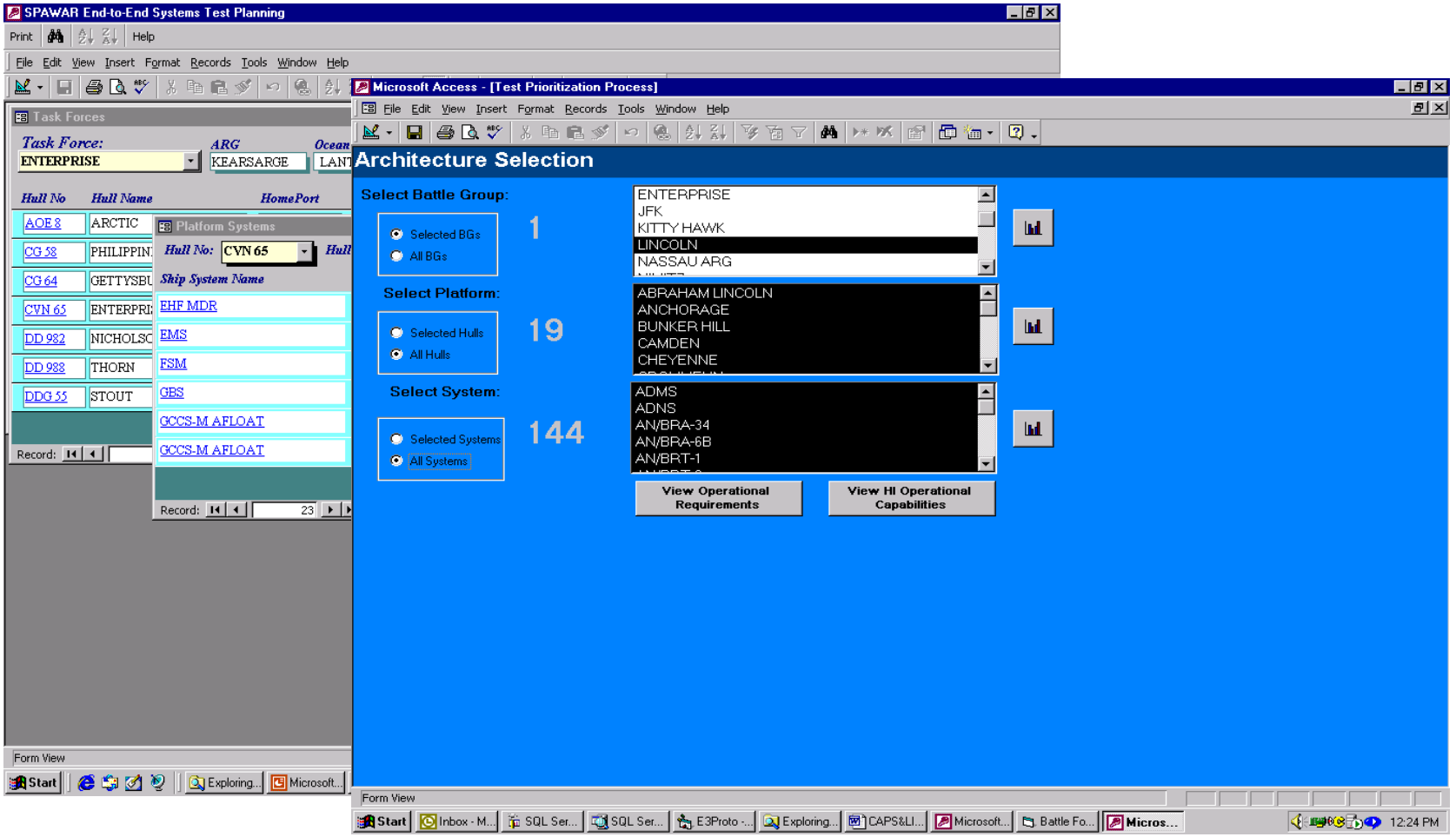
Notional Requirements (2 of 2)

- Assess impact of sharing BW and horizontal netting with other Joint forces
- Assess overlap of RF spectrum footprints for fielded and planned systems
- Assess C4I and weapon system capabilities, functions and duplications
- Synchronize space segment with ship installs
- Establish MOEs to determine warfighting ROI and recurring capitalization costs

Side-by-Side Slides for Demo

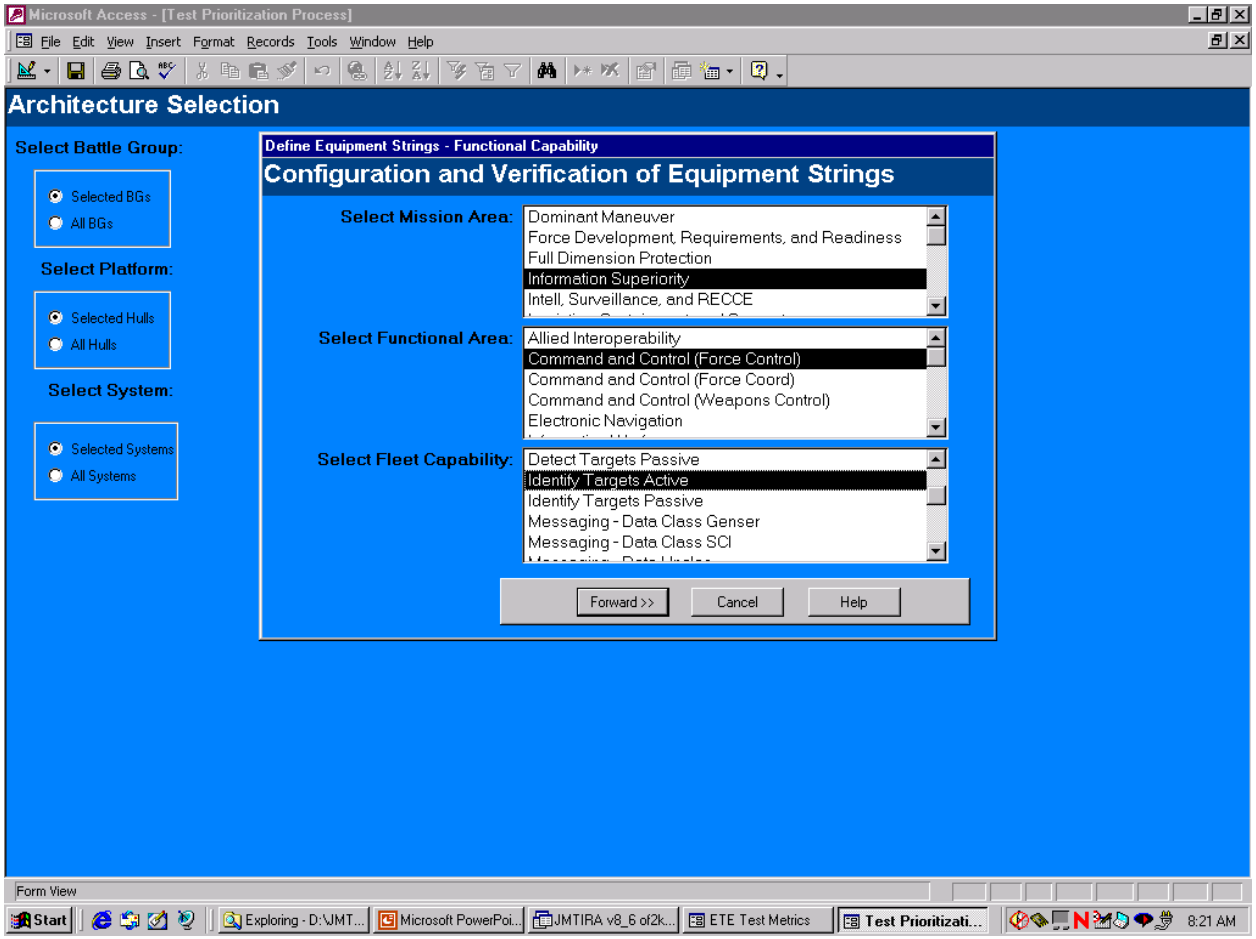
NTIRA OODBMS

Transition Authoritative Fleet & BG Configuration from Y2K Relational Database to NTIRA OODBMS and Relate to Mission, Function, Attributes



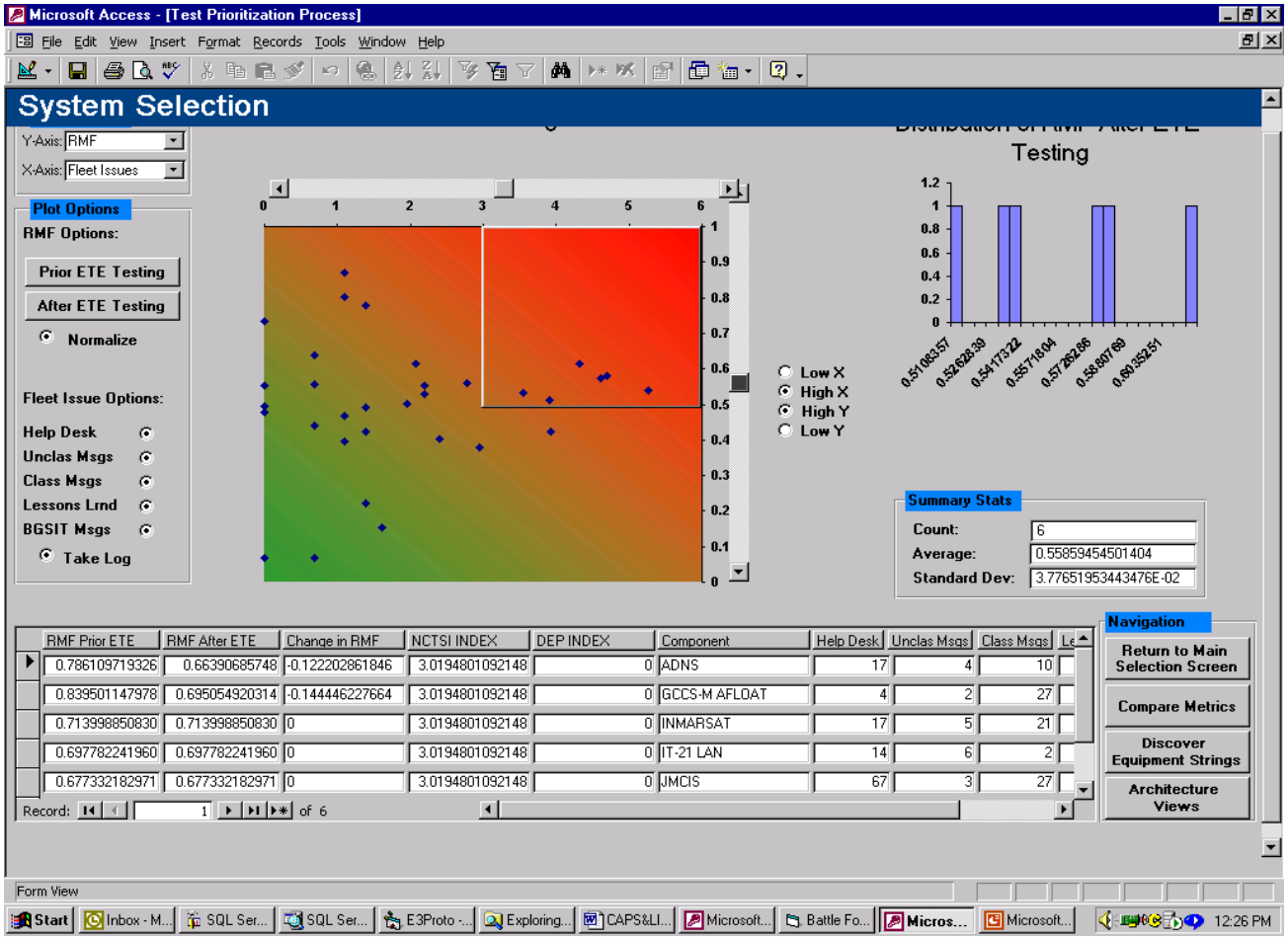
NTIRA Mission Definition

Integration with Architecture Development and Assessment Tools (JMAAT, DIAD) can provide the Inputs Required to Perform Affordability Assessments



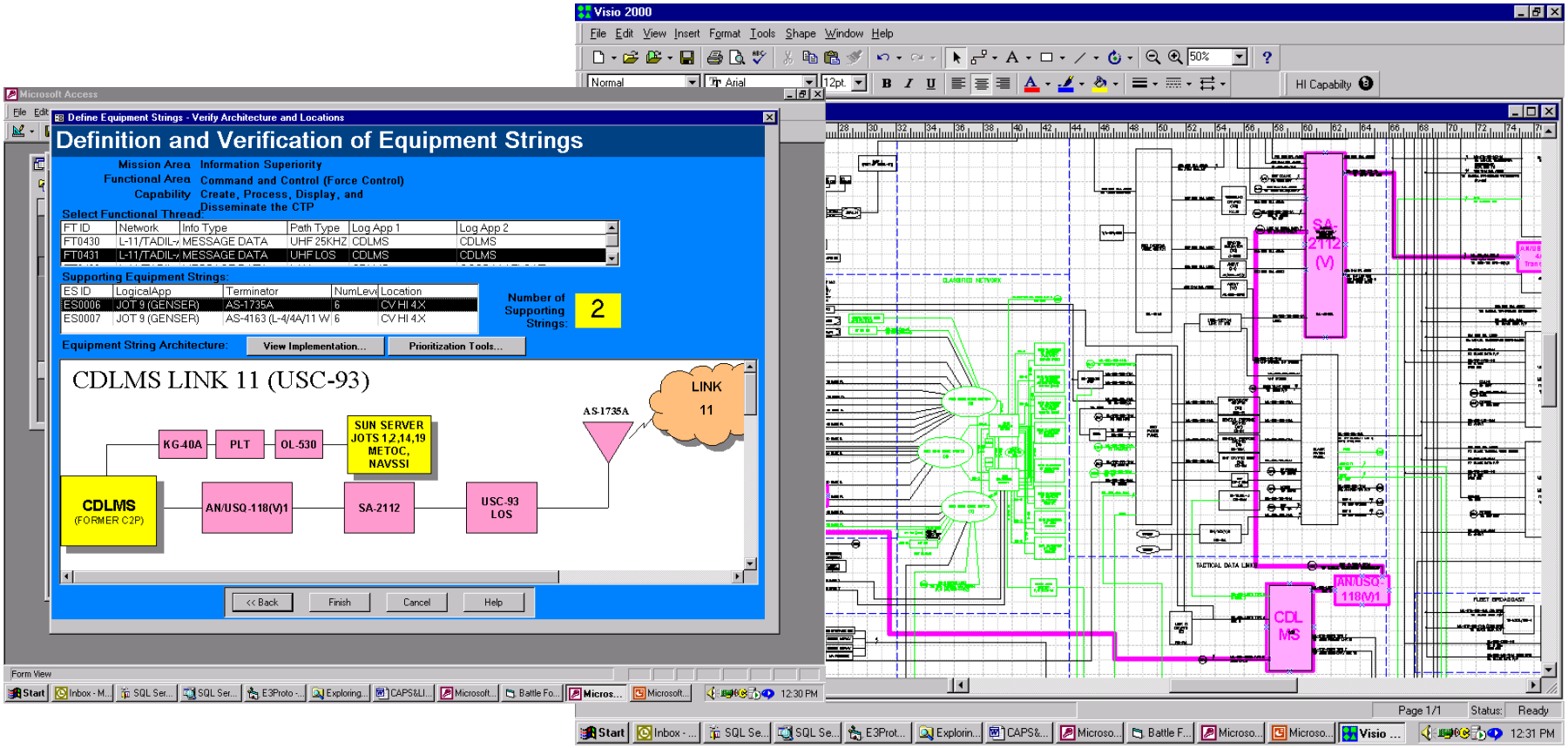
NTIRA Affordability

Workspace (Views and Processes) to Compare Interoperability/Performance Risk, Costs, Confidence and Capability Contribution over Time



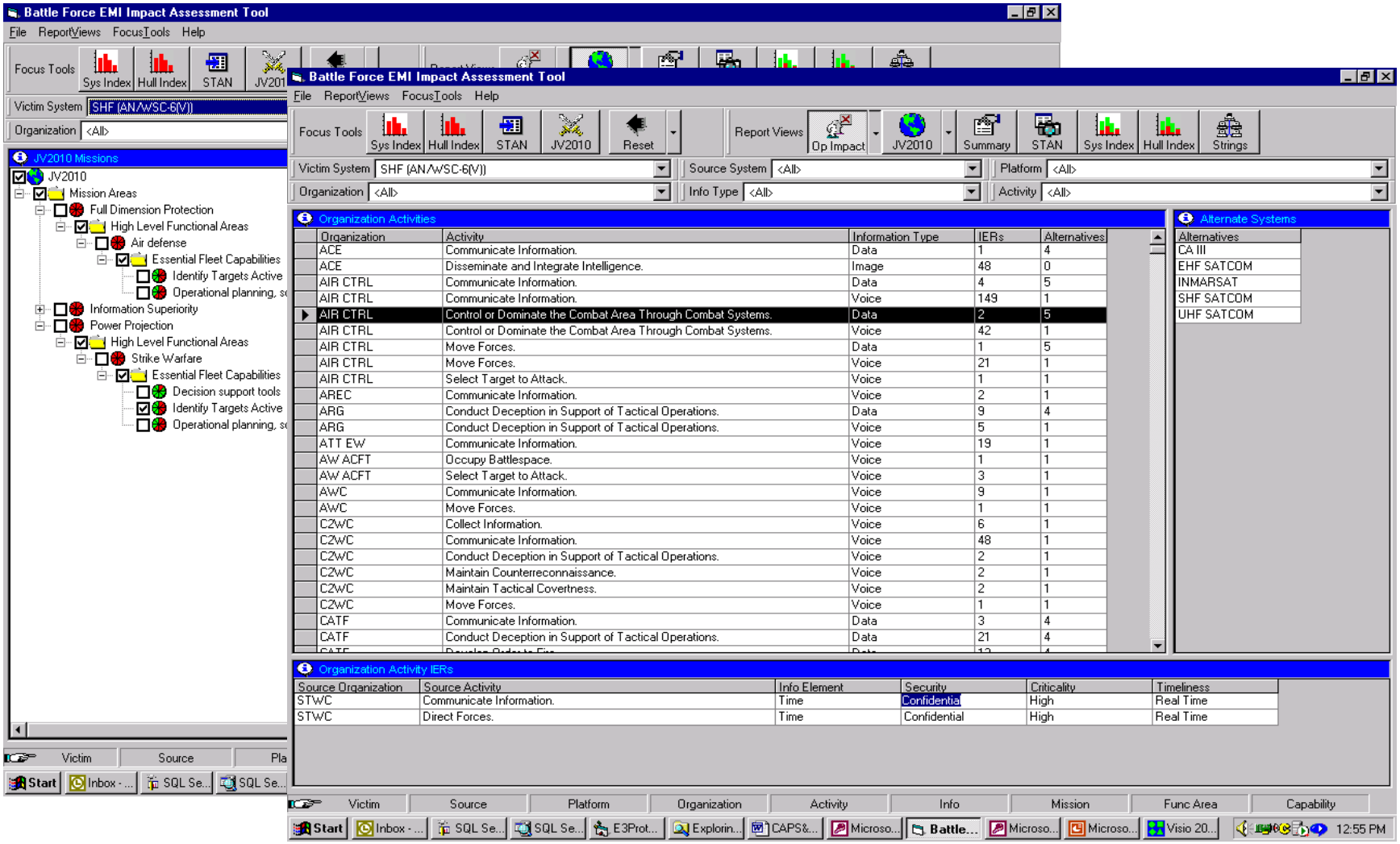
NTIRA Equipment Strings

Equipment Strings are Defined Visually with Trace-ability to NTIRA OODBMS

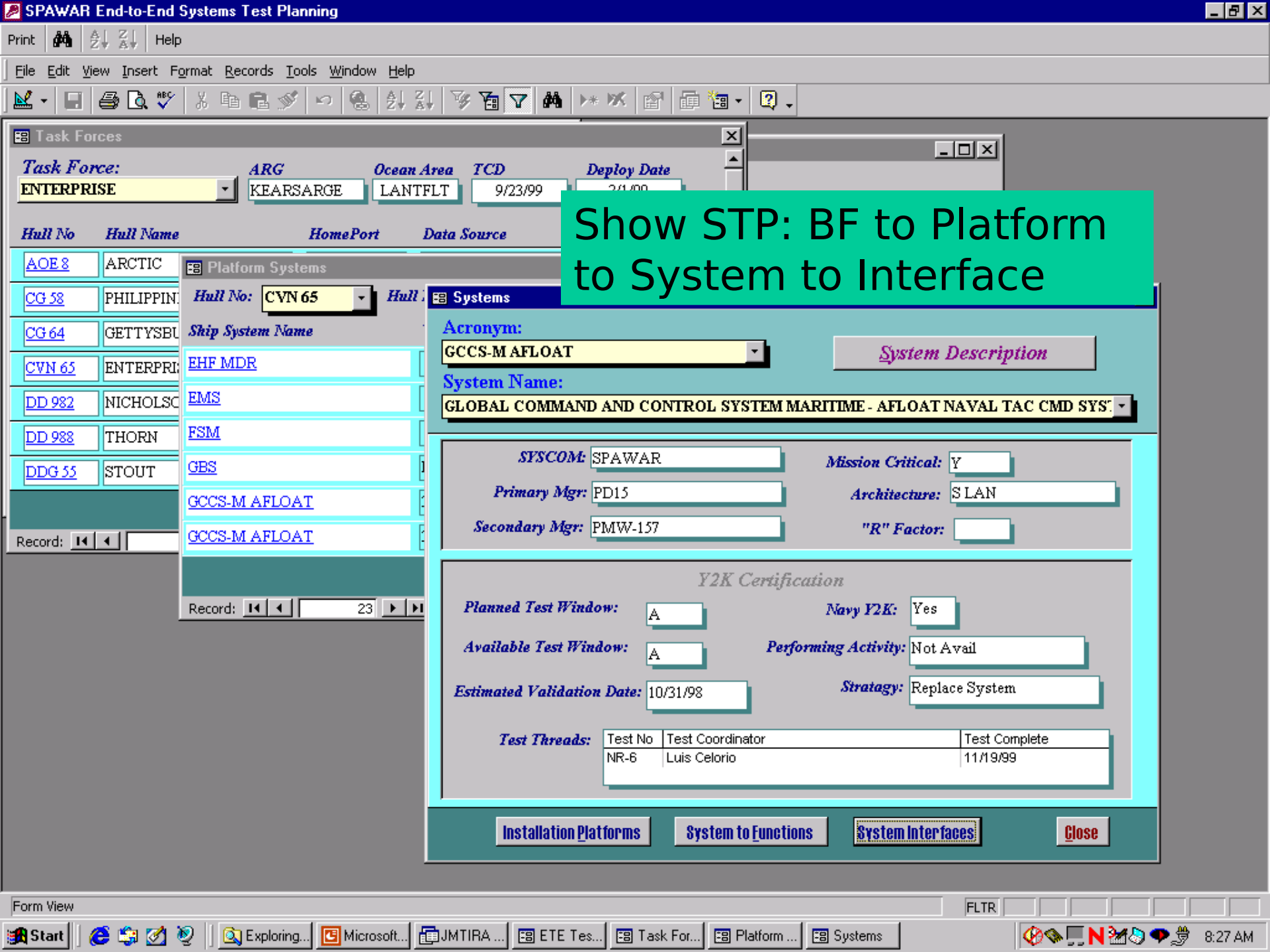


NTIRA Capability Analysis

Equipment Strings are Mapped to Fleet Capabilities via System Functions and Activities



Live Demo Flow (Practice Only)


SPAWAR End-to-End Systems Test Planning
Print
Help
File Edit View Insert Format Records Tools Window Help
Task Forces
Task Force:
ENTERPRISE
ARG
KEARSARGE
Ocean Area
LANTFLT
TCD
9/23/99
Deploy Date
Hull No
Hull Name
HomePort
Data Source
AOE 8
ARCTIC
CG 58
PHILIPPIN
CG 64
GETTYSBU
CVN 65
ENTERPRI
DD 982
NICHOLSC
DD 988
THORN
DDG 55
STOUT
Record:
Platform Systems
Hull No:
CVN 65
Ship System Name
EHF MDR
EMS
FSM
GBS
GCCS-M AFLOAT
GCCS-M AFLOAT
Record:
23
Show STP: BF to Platform to System to Interface
Systems
Acronym:
GCCS-M AFLOAT
System Description
System Name:
GLOBAL COMMAND AND CONTROL SYSTEM MARITIME - AFLOAT NAVAL TAC CMD SYS
SYSCOM:
SPAWAR
Mission Critical:
Y
Primary Mgr:
PD15
Architecture:
S LAN
Secondary Mgr:
PMW-157
"R" Factor:
Y2K Certification
Planned Test Window:
A
Navy Y2K:
Yes
Available Test Window:
A
Performing Activity:
Not Avail
Estimated Validation Date:
10/31/98
Stratagy:
Replace System
Test Threads:
Test No
Test Coordinator
Test Complete
NR-6
Luis Celorio
11/19/99
Installation Platforms
System to Functions
System Interfaces
Close
Form View
FLTR
Start
Exploring...
Microsoft...
JMTIRA ...
ETE Tes...
Task For...
Platform ...
Systems
8:27 AM

File Edit View Insert Format Records Tools Window Help

chitecture Selection

ect Battle Group:

- Selected BGs
- All BGs

1

ENTERPRISE
JFK
KITTY HAWK
LINCOLN
NASSAU ARG

Select Platform:

- Selected Hulls
- All Hulls

19

ABRAHAM LINCOLN
ANCHORAGE
BUNKER HILL
CAMDEN
CHEYENNE

Select System:

- Selected Systems
- All Systems

144

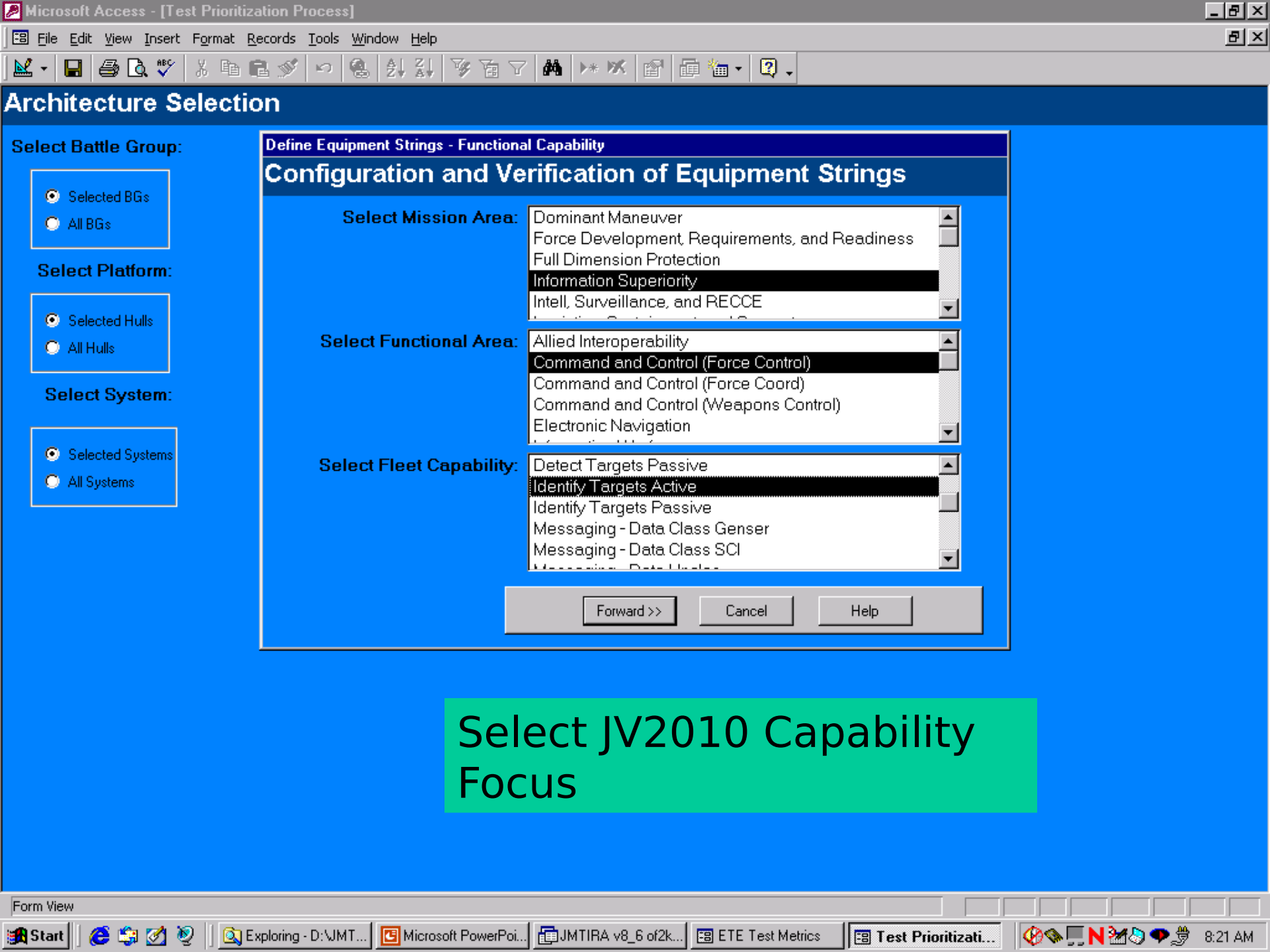
ADMS
ADNS
AN/BRA-34
AN/BRA-6B
AN/BRT-1

Set Focus of Assessment to a BF

View Operational Requirements

View HI Operational Capabilities

View


Microsoft Access - [Test Prioritization Process]
File Edit View Insert Format Records Tools Window Help
Architecture Selection
Select Battle Group:
Selected BGs
All BGs
Select Platform:
Selected Hulls
All Hulls
Select System:
Selected Systems
All Systems
Define Equipment Strings - Functional Capability
Configuration and Verification of Equipment Strings
Select Mission Area:
Dominant Maneuver
Force Development, Requirements, and Readiness
Full Dimension Protection
Information Superiority
Intell, Surveillance, and RECCE
Select Functional Area:
Allied Interoperability
Command and Control (Force Control)
Command and Control (Force Coord)
Command and Control (Weapons Control)
Electronic Navigation
Select Fleet Capability:
Detect Targets Passive
Identify Targets Active
Identify Targets Passive
Messaging - Data Class Genser
Messaging - Data Class SCI
Forward >>
Cancel
Help
Select JV2010 Capability Focus
Form View
Start
Exploring - D:\JMT...
Microsoft PowerPoi...
JMTIRA v8_6 of2k...
ETE Test Metrics
Test Prioritizati...
8:21 AM

File Edit View Insert Format Records Tools Window Help

ystem Selection

xis: RMF

xis: Fleet Issues

lot Options

IF Options:

Prior ETE Testing

After ETE Testing

Normalize

et Issue Options:

lp Desk

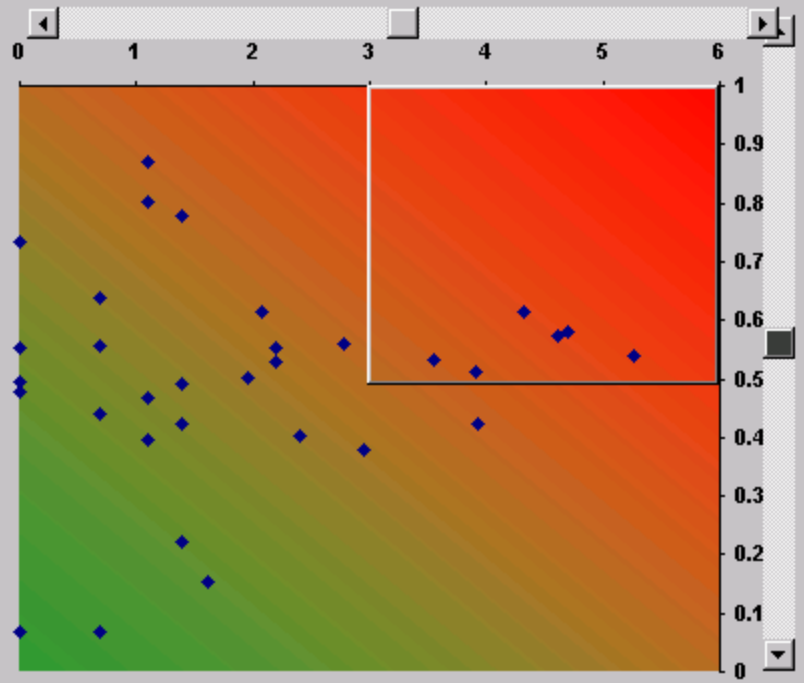
clas Msgs

ss Msgs

ssons Lrnd

SIT Msgs

Take Log



Show Risk Assessment, how risk drops after testing because confidence increases, refer to Side-by-Side slide… this is where the Affordability stuff will come in.

Select high risk systems for the selected BF and Mission.

Summary Stats

Count:	6
Average:	0.55859454501404
Standard Dev:	3.776519534434 76E-02

RMF Prior ETE	RMF After ETE	Change in RMF	NCTSI INDEX	DEP INDEX	Component	Help Desk	Unclas Msgs	Class Msgs	Le
0.786109719326	0.66390685748	-0.122202861846	3.0194801092148	0	ADNS	17	4	10	
0.839501147978	0.695054920314	-0.144446227664	3.0194801092148	0	GCCS-M AFLOAT	4	2	27	
0.713998850830	0.713998850830	0	3.0194801092148	0	INMARSAT	17	5	21	
0.697782241960	0.697782241960	0	3.0194801092148	0	IT-21 LAN	14	6	2	
0.677332182971	0.677332182971	0	3.0194801092148	0	JMCIS	67	3	27	

cord: 1 of 6

Navigation

Return to Main Selection Screen

Compare Metrics

Discover Equipment Strings

Architecture Views

n View

Define Equipment Strings - Verify Architecture and Locations

Definition and Verification of Equipment Strings

Mission Area: Information Superiority
Functional Area: Command and Control (Force Control)
Capability: Create, Process, Display, and Disseminate the CTP

Select Functional Thread:

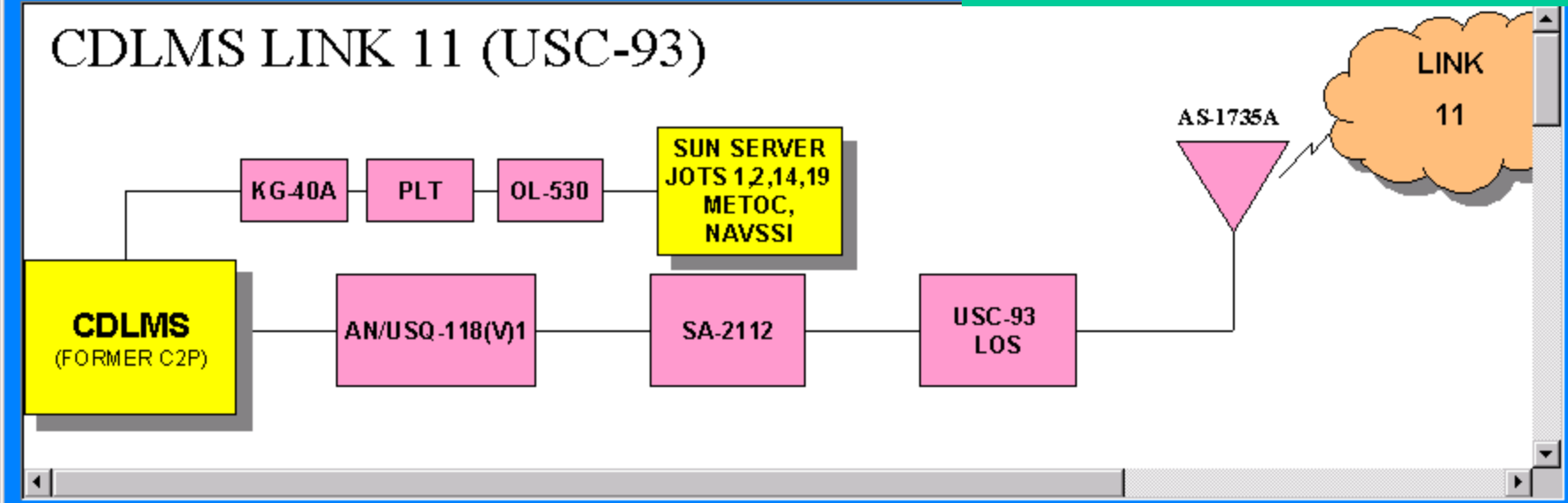
FT ID	Network	Info Type	Path Type	Log App 1	Log App 2
FT0430	L-11/TADIL-J	MESSAGE DATA	UHF 25KHZ	CDLMS	CDLMS
FT0431	L-11/TADIL-J	MESSAGE DATA	UHF LOS	CDLMS	CDLMS

Supporting Equipment Strings:

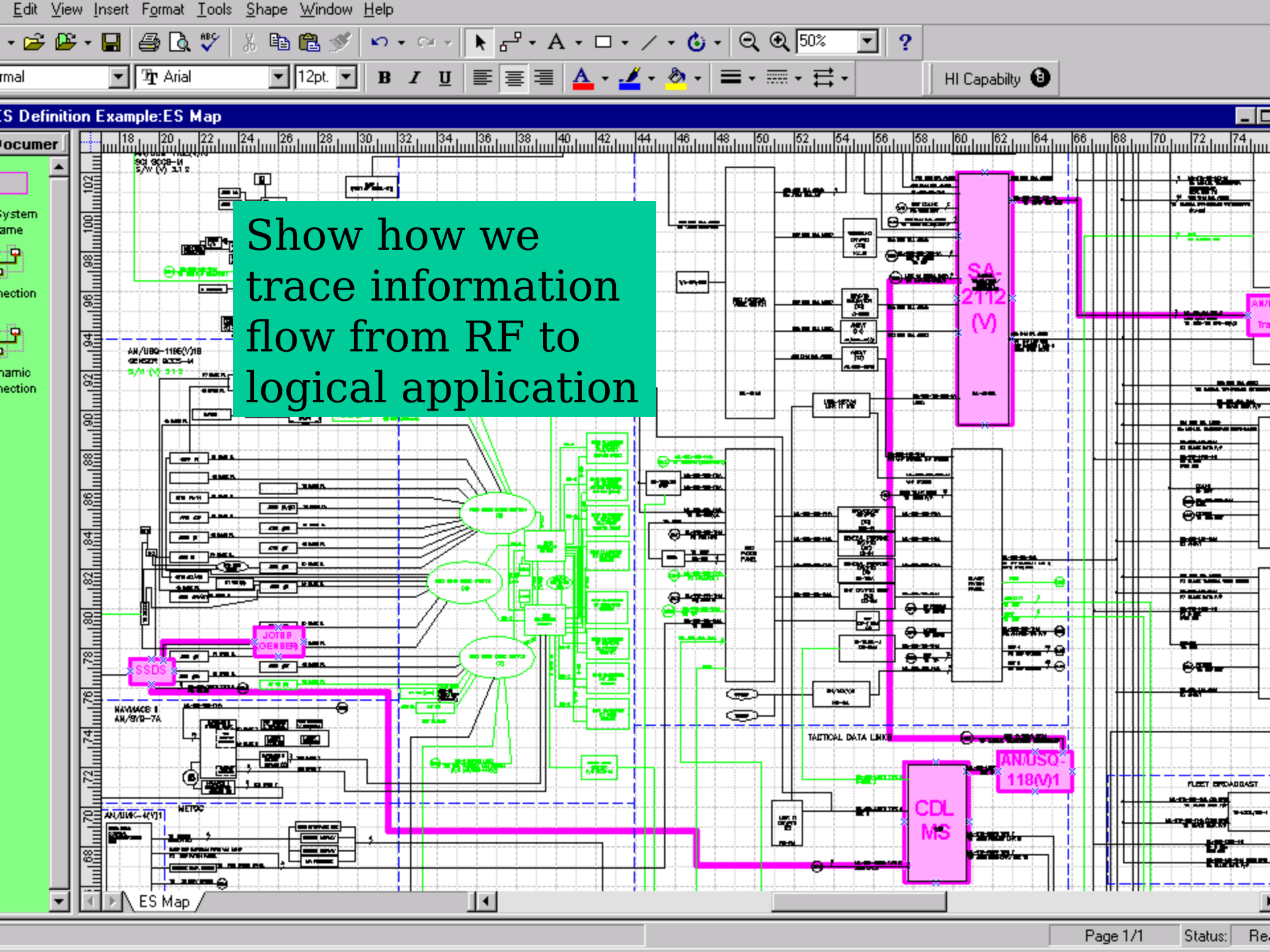
ES ID	LogicalApp	Terminator	NumLeve	Location
ES0006	JOT 9 (GENSER)	AS-1735A	6	CV HI 4.X
ES0007	JOT 9 (GENSER)	AS-4163 (L-4/4A/11 W	6	CV HI 4.X

Show Equipment Strings for high risk systems

Equipment String Architecture: View Implementation... Prioritization Too



<< Back | Finish | Cancel | Help


Edit View Insert Format Tools Shape Window Help
50%
Arial
12pt.
HI Capabilty
ES Definition Example:ES Map
Show how we trace information flow from RF to logical application
SA-2112 (V)
SSDS
JOTS GENSER
CDL MS
AN/USQ-118(V)1
TACTICAL DATA LINKS
ES Map
Page 1/1
Status:

Battle Force EMI Impact Assessment Tool

File ReportViews FocusTools Help

Focus Tools: Sys Index | Hull Index | STAN | JV2010 | Reset

Report Views: Op Impact | JV2010 | Summary | STAN | Sys Index | Hull Index | Strings

Victim System <All> | Source System <All> | Platform <All>

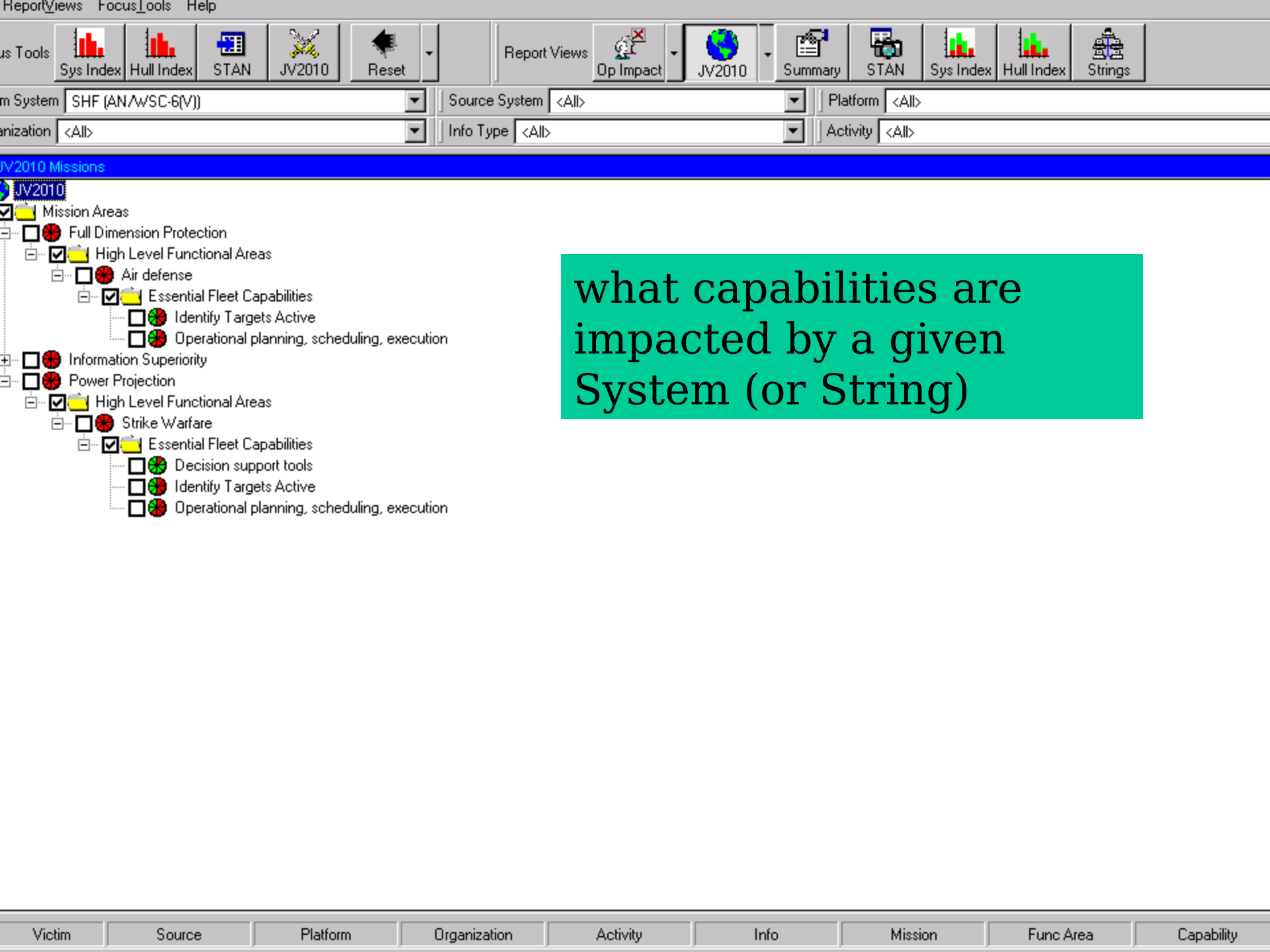
Organization <All> | Activity <All> | Info Type <All>

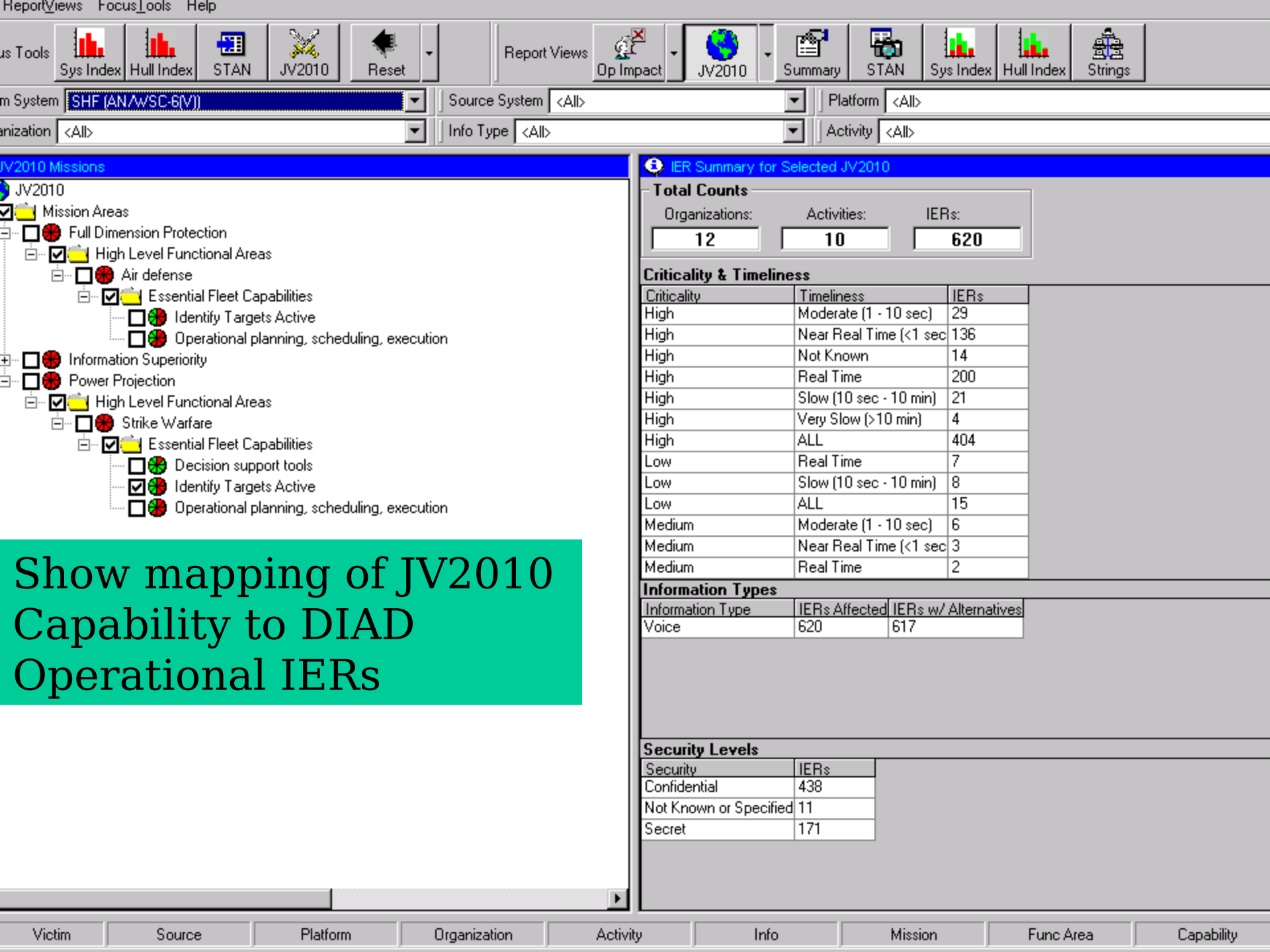
Equipment Strings

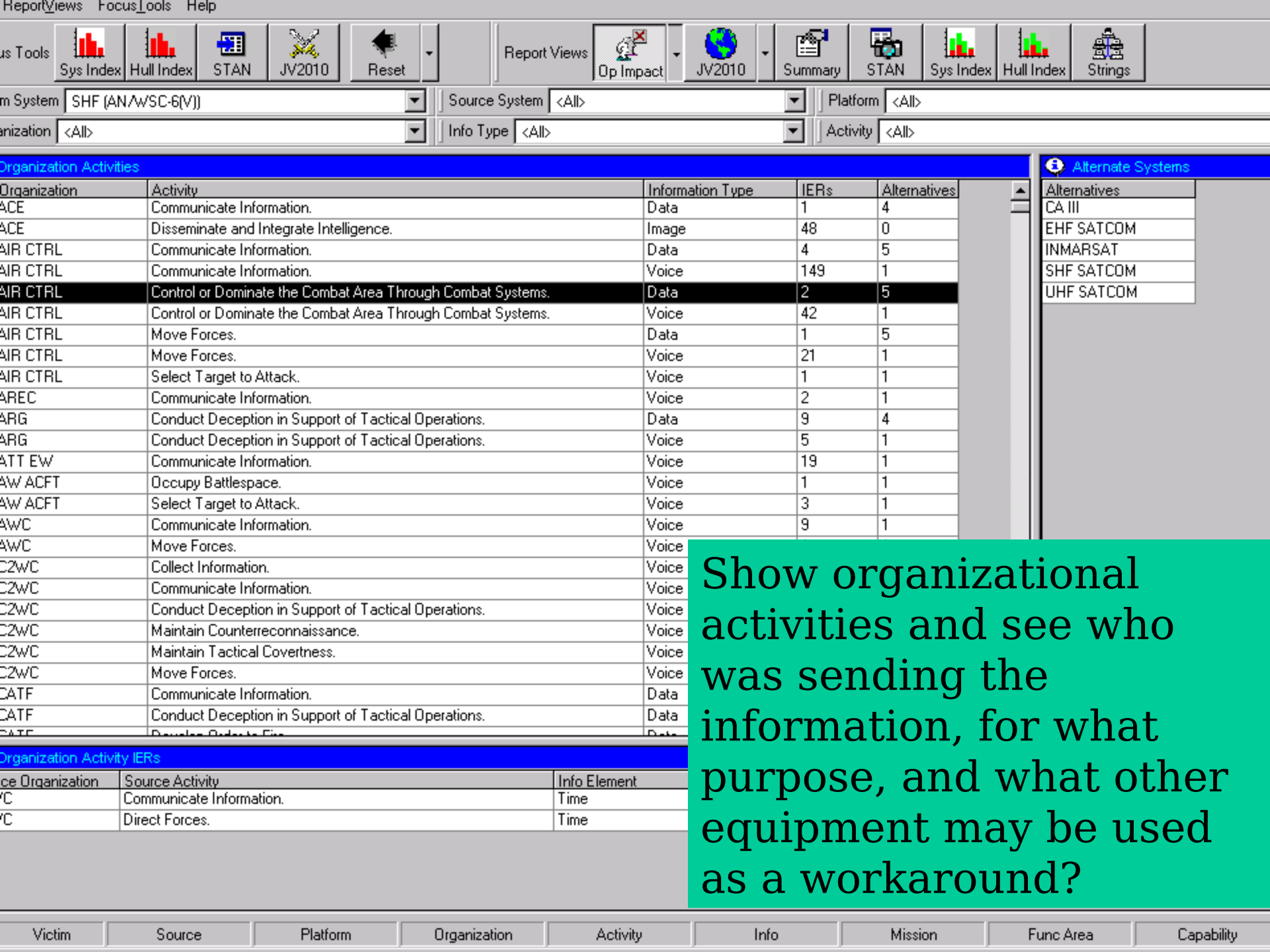
Equipment Strings: 20

ES_ID	Sys 1	Sys 2	Sys 3	Sys 4	Sys 5	Sys 6	Sys 7
ES0005_BES	CA III	TRANSEC Patch	Timeplex LINK II	DTS	STU III		
ES0026_BES	JDISS	GCCS-M AFLOAT	ADNS	Timeplex Link II	KG-194	OM-55	SHF (AN/WSC-6(V))
ES0027_BES	TBMCS	IT-21 LAN	SB-4124 Red MLPP	KG-84			
ES0028_BES	CTAPS	GCCS-M AFLOAT	IT-21 LAN	ADNS			EC Patch
ES0053_PES	NAVMACS II	IT-21 LAN	ADNS	SB-4124/WS			X LINK 2+
ES0054_PES	NAVMACS II	IT-21 LAN	ADNS	SB-4124/WS			X LINK 2+
ES0083_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WS			X LINK 2+
ES0084_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	TRANSEC PA			X LINK 2+
ES0085_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WS			X LINK 2+
ES0086_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	TRANSEC PA			X LINK 2+
ES0087_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WS			R
ES0088_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WS			TCOM
ES0094_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	TRANSEC PATCH PAN	KG-194	TRANSEC PATCH PAN	AN/FCC-100 PATCH PA
ES0096_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WSC RED	KG-84A	SB-4124/WSC BLK	UHF SATCOM
ES0097_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WSC RED	KG-84A	SB-4124/WSC BLK	AN/USC-38 EHF
ES0098_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WSC RED	KG-84A	SB-4124/WSC BLK	UHF SATCOM
ES0099_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	TRANSEC PATCH PAN	KG-194_1	TRANSEC PATCH PAN	AN/FCC-100 PATCH PA
ES0100_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	TRANSEC PATCH PAN	KG-84A_3	TRANSEC PATCH PAN	INMARSAT B
ES0101_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WSC RED	KG-84A_2	SB-4124/WSC BLK	AN/FCC-100 PATCH PA
ES0102_PES	GCCS-M AFLOAT GEN	IT-21 LAN	ADNS	SB-4124/WSC RED	KG-84A_1	SB-4124/WSC BLK	EHF SATCOM

Show mapping of Equipment String to capability in E3 Module


ReportViews FocusTools Help
us Tools
Sys Index
Hull Index
STAN
JV2010
Reset
Report Views
Op Impact
JV2010
Summary
STAN
Sys Index
Hull Index
Strings
m System
SHF (AN/WSC-6(V))
Source System
<All>
Platform
<All>
anization
<All>
Info Type
<All>
Activity
<All>
JV2010 Missions
JV2010
Mission Areas
Full Dimension Protection
High Level Functional Areas
Air defense
Essential Fleet Capabilities
Identify Targets Active
Operational planning, scheduling, execution
Information Superiority
Power Projection
High Level Functional Areas
Strike Warfare
Essential Fleet Capabilities
Decision support tools
Identify Targets Active
Operational planning, scheduling, execution
what capabilities are impacted by a given System (or String)
Victim
Source
Platform
Organization
Activity
Info
Mission
Func Area
Capability


ReportViews FocusTools Help
us Tools
Sys Index
Hull Index
STAN
JV2010
Reset
Report Views
Op Impact
JV2010
Summary
STAN
Sys Index
Hull Index
Strings
m System
SHF (AN/WSC-6(V))
Source System
<All>
Platform
<All>
anization
<All>
Info Type
<All>
Activity
<All>
JV2010 Missions
JV2010
Mission Areas
Full Dimension Protection
High Level Functional Areas
Air defense
Essential Fleet Capabilities
Identify Targets Active
Operational planning, scheduling, execution
Information Superiority
Power Projection
High Level Functional Areas
Strike Warfare
Essential Fleet Capabilities
Decision support tools
Identify Targets Active
Operational planning, scheduling, execution
Show mapping of JV2010 Capability to DIAD Operational IERs
IER Summary for Selected JV2010
Total Counts
Organizations: 12
Activities: 10
IERs: 620
Criticality & Timeliness
Criticality | Timeliness | IERs
High | Moderate (1 - 10 sec) | 29
High | Near Real Time (<1 sec | 136
High | Not Known | 14
High | Real Time | 200
High | Slow (10 sec - 10 min) | 21
High | Very Slow (>10 min) | 4
High | ALL | 404
Low | Real Time | 7
Low | Slow (10 sec - 10 min) | 8
Low | ALL | 15
Medium | Moderate (1 - 10 sec) | 6
Medium | Near Real Time (<1 sec | 3
Medium | Real Time | 2
Information Types
Information Type | IERs Affected | IERs w/ Alternatives
Voice | 620 | 617
Security Levels
Security | IERs
Confidential | 438
Not Known or Specified | 11
Secret | 171
Victim
Source
Platform
Organization
Activity
Info
Mission
Func Area
Capability


ReportViews FocusTools Help
Sys Index
Hull Index
STAN
JV2010
Reset
Report Views
Op Impact
JV2010
Summary
STAN
Sys Index
Hull Index
Strings
m System
SHF (AN/WSC-6(V))
Source System
<All>
Platform
<All>
anization
<All>
Info Type
<All>
Activity
<All>
Organization Activities
Organization
Activity
Information Type
IERs
Alternatives
ACE
Communicate Information.
Data
1
4
ACE
Disseminate and Integrate Intelligence.
Image
48
0
AIR CTRL
Communicate Information.
Data
4
5
AIR CTRL
Communicate Information.
Voice
149
1
AIR CTRL
Control or Dominate the Combat Area Through Combat Systems.
Data
2
5
AIR CTRL
Control or Dominate the Combat Area Through Combat Systems.
Voice
42
1
AIR CTRL
Move Forces.
Data
1
5
AIR CTRL
Move Forces.
Voice
21
1
AIR CTRL
Select Target to Attack.
Voice
1
1
AREC
Communicate Information.
Voice
2
1
ARG
Conduct Deception in Support of Tactical Operations.
Data
9
4
ARG
Conduct Deception in Support of Tactical Operations.
Voice
5
1
ATT EW
Communicate Information.
Voice
19
1
AW ACFT
Occupy Battlespace.
Voice
1
1
AW ACFT
Select Target to Attack.
Voice
3
1
AWC
Communicate Information.
Voice
9
1
AWC
Move Forces.
Voice
C2WC
Collect Information.
Voice
C2WC
Communicate Information.
Voice
C2WC
Conduct Deception in Support of Tactical Operations.
Voice
C2WC
Maintain Counterreconnaissance.
Voice
C2WC
Maintain Tactical Covertness.
Voice
C2WC
Move Forces.
Voice
CATF
Communicate Information.
Data
CATF
Conduct Deception in Support of Tactical Operations.
Data
Alternate Systems
Alternatives
CA III
EHF SATCOM
INMARSAT
SHF SATCOM
UHF SATCOM
Organization Activity IERs
ce Organization
Source Activity
Info Element
C
Communicate Information.
Time
C
Direct Forces.
Time
Show organizational activities and see who was sending the information, for what purpose, and what other equipment may be used as a workaround?
Victim
Source
Platform
Organization
Activity
Info
Mission
Func Area
Capability