
KSCO
The KSCO Community and its Coalition Experiments
http://www.aiai.ed.ac.uk/project/ksco/

KSCO Events

- KSCO-1999 – International Workshop on Knowledge-Based Planning for Coalition Operations, May 1999, Edinburgh, Scotland.
  - Working parties proposed series of Coalition Experiments Binni scenario adopted for community experimentation.
  - Working Group on KSCO formed and first meeting held to plan community activities.
- Coalition Experiments and multi-national joint experimentation encouraged.
- KSCO-2002 – Second Conference on Knowledge Systems for Coalition Operations, June 2002, Toulouse, France.
- IEEE Intelligent Systems, Special Issue on Knowledge Systems for Coalition Operations, Volume 17 Number 2, May/June 2002.
- KSCO-2004 – Volume of Papers on Knowledge Systems for Coalition Operations, October 2004. Planned conference in Pensacola, Florida, USA cancelled during active hurricane season (Ivan in September 2004).
- KSCO-2006 – Third Conference on Knowledge Systems for Coalition Operations, part of IEEE Workshop on Distributed Intelligent Systems (DIS-2006), June 2006, Prague, Czech Republic.
- Web site and relevant occasional communications on behalf of community.

KSCO Working Group

- Jean Berger (DRDC, Canada)
- Jeff Bradshaw (IHMC, USA)
- David Brown (MITRE, USA)
- Richard Davis (DSTO, Australia)
- Roberto Desimone (QinetiQ, UK)
- Jerry Dussault (AFRL, USA; TTCP Representative)
- Dan Fayette (AFRL, USA)
- Scott Fouse (IS, USA)
- Nort Fowler (AFRL, USA; now retired)
- Vladimir Gordoteski (St. Petersburg Inst. for Info. and Automation, Russia)
- Jim Hendler (University of Maryland, USA)
- Jan Jelínek (Honeywell, USA)
- James Lawton (AFRL, USA)
- Paul Losiewicz (EOARD/London, USA)
- Vijay Kowtha (ONR Global/London, USA)
- Dale Lambert (DSTO, Australia)
- Barry McKinney (EOARD/London, USA)
- Rick Metzger (AFRL, USA)
- Jitu Patel (DSTL, UK; TTCP Representative)
- Michal Pěchouček (Czech Technical University in Prague, Czech Republic)
- Tony Rathmell (DSTL, UK)
- Martin Rehák (Czech Technical University in Prague, Czech Republic)
- Niranjan Suri (IHMC, USA)
- Austin Tate (AIAI, University of Edinburgh, UK)

KSCO Topics

- Innovative theory and techniques for coalition formation and support to similar “virtual organisations”
- Applications and requirements for knowledge-based coalition planning and operations management
- Knowledge-based approaches to command and control
- Knowledge-based approaches to coalition logistics
- Knowledge-based approaches to Operations-Other-Than-War - such as peace keeping missions and other humanitarian operations
- Multi-agent systems and the concept of agency in coalitions
- Tools and techniques for knowledge-based simulation and modelling of coalition operations
- Security and maintenance of private information or knowledge in coalition operations
- Autonomous vs. centrally managed coalition operations

KSCO Issues

- Different doctrine, decision making, rules of engagement and, in general, mission "agendas"
- Different technology skill and equipment levels
- Questionable compatibility of respective national information systems
- Limited models for coalition force operations
- Command authorities - agreement and transfers
- Information systems resource sharing agreements & capacity
- Different interpretation of situational information
- Lack of compatible security architectures

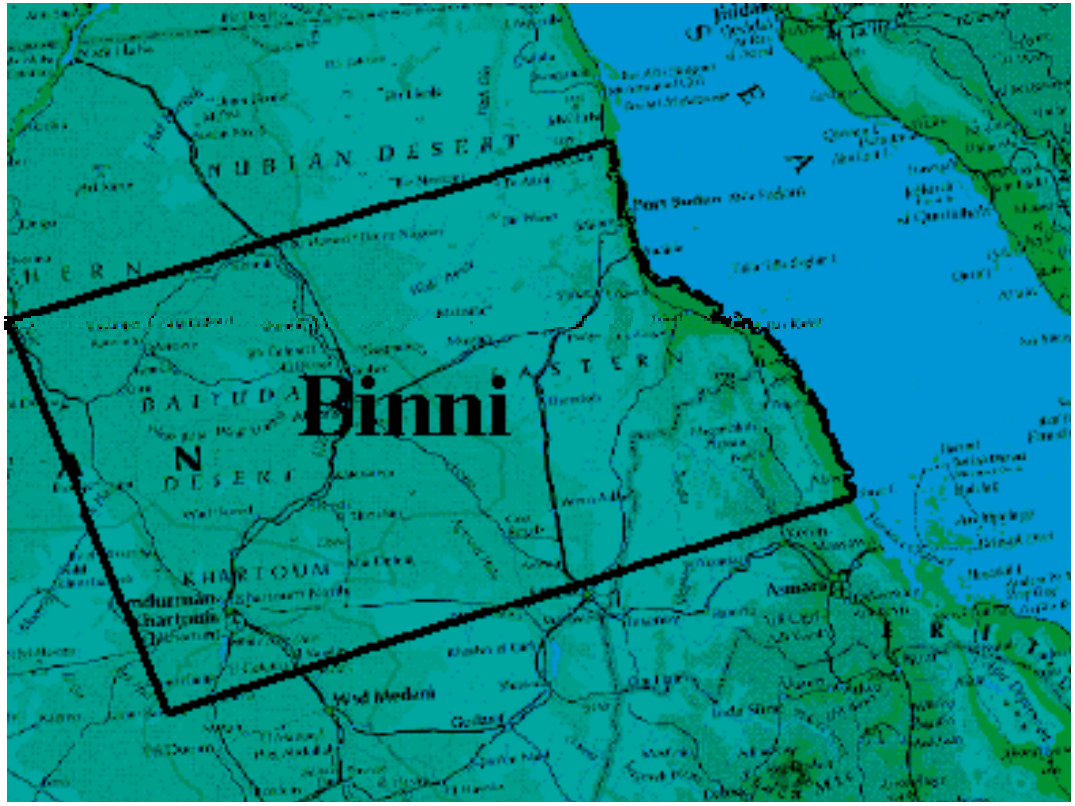
From LeRoy Pearce, Canadian MOD

TTCP
The Technical Cooperation Program

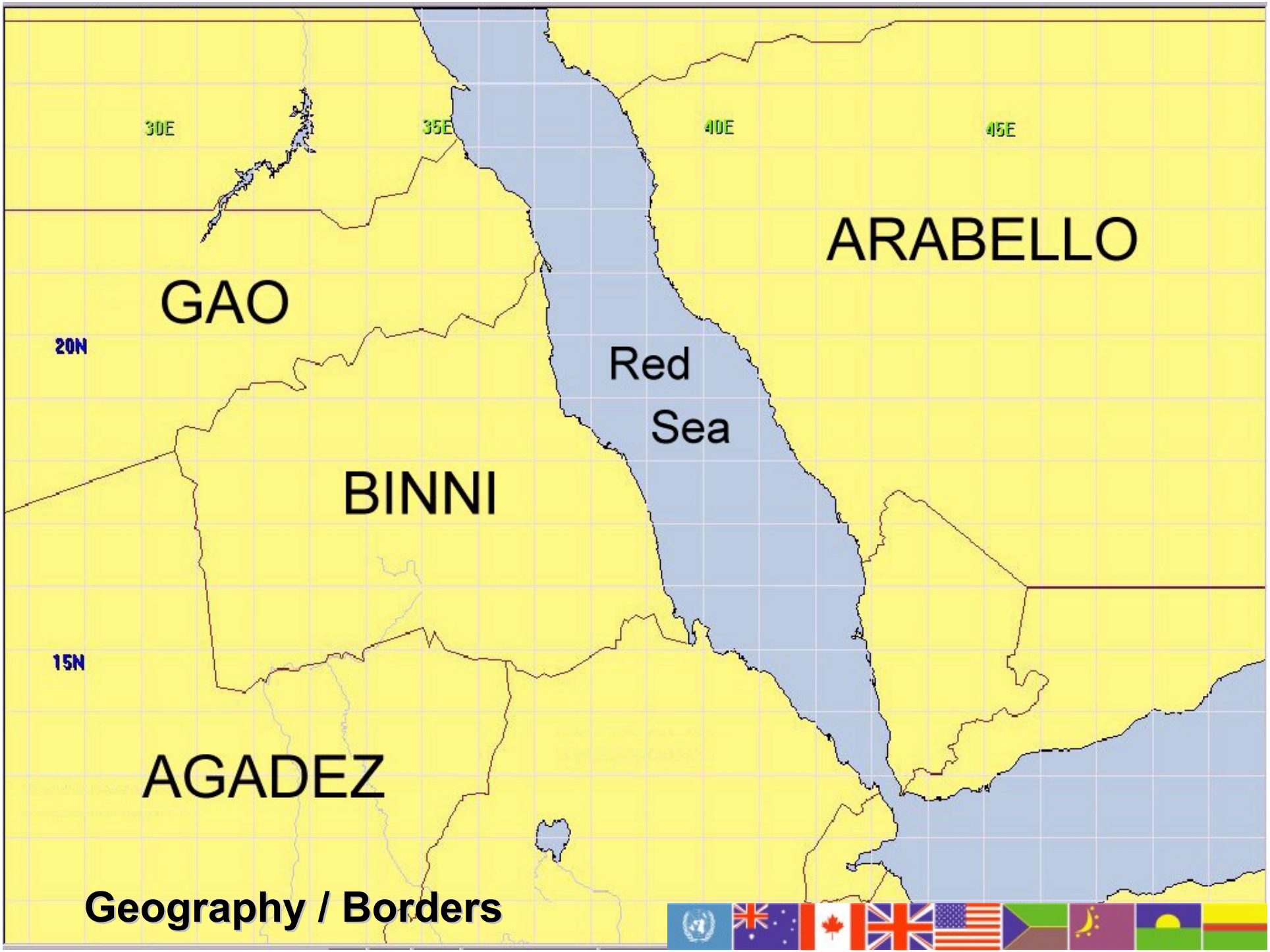
- Australia, Canada, New Zealand, UK, USA
- C3I Group - Command, Control, Communication and Information Systems
- Created Binni Scenario
- Encouraged KSCO and Coalition Experiments

- http://www.dtic.mil/ttcp/

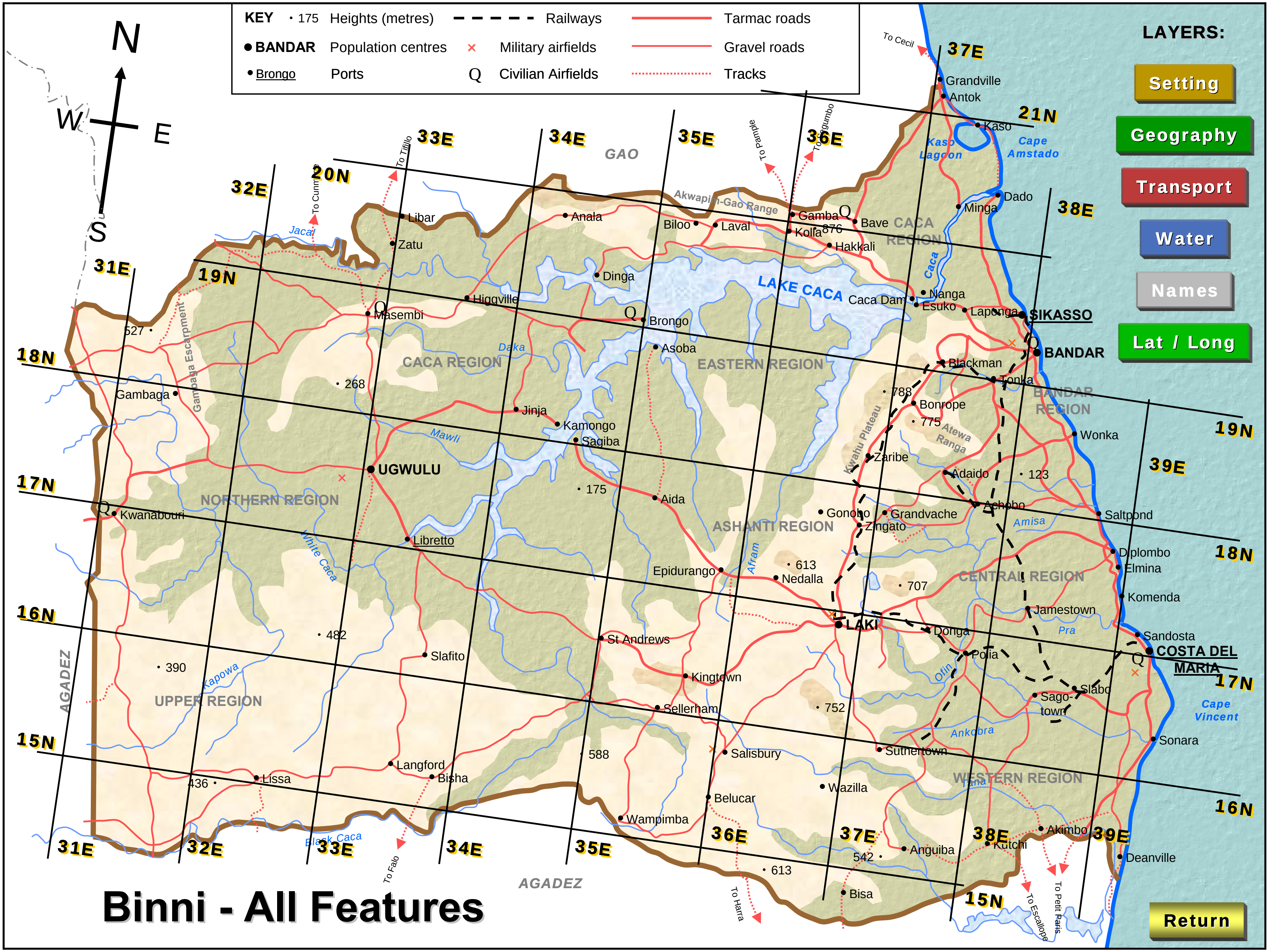
Binni - Gateway to the Golden Bowl of Africa



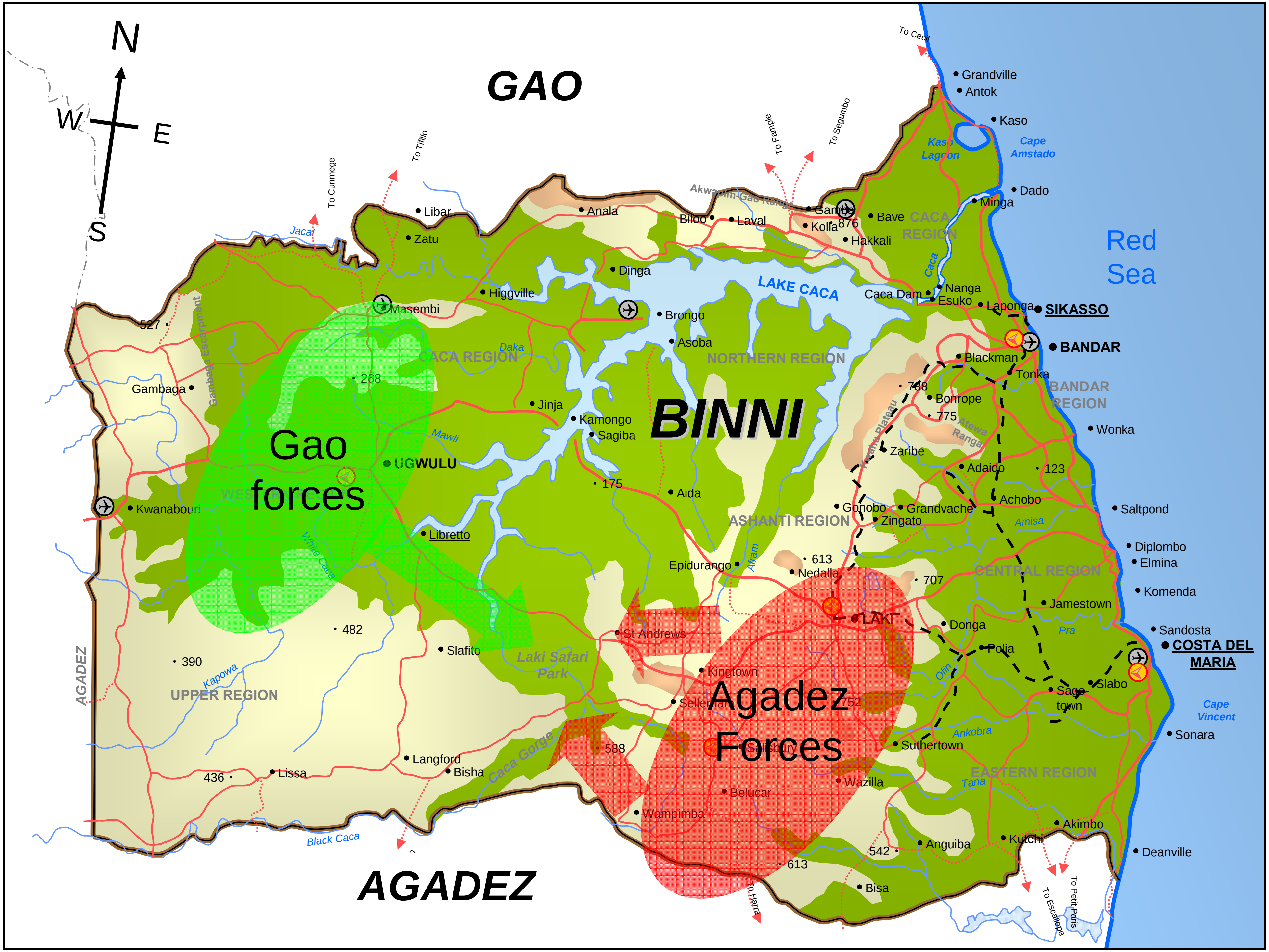
Rathmell, R.A. (1999) A Coalition Force Scenario 'Binni - Gateway to the Golden Bowl of Africa', in Proceedings of the International Workshop on Knowledge-Based Planning for Coalition Forces, (ed. Tate, A.) pp. 115-125, Edinburgh, Scotland, 10th-11th May 1999.



Geography / Borders



Binni - All Features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Red Sea
Gao forces
Agadez Forces
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CACA REGION
NORTHERN REGION
BANDAR REGION
ASHANTI REGION
CENTRAL REGION
EASTERN REGION
UPPER REGION
Laki Safari Park
SIKASSO
BANDAR
UGWULU
LAKI
COSTA DEL MARIA
Grandville
Antok
Kaso
Kaso Lagoon
Cape Amstado
Dado
Minga
Bave
Gambo
Kolla
Hakkali
Laval
Biloo
Anala
Libar
Zatu
Dinga
Higgville
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Wazilla
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Deanville
Bisa
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Sellerman
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Caca Gorge
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Amisa
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To Cecil
To Segumbo
To Pample
To Tifillo
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To Harra
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Laki Safari Park Home Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.objs.com/agility/CoAX/Safari-Park/Safari-Park.html Go Links

Laki Safari Park

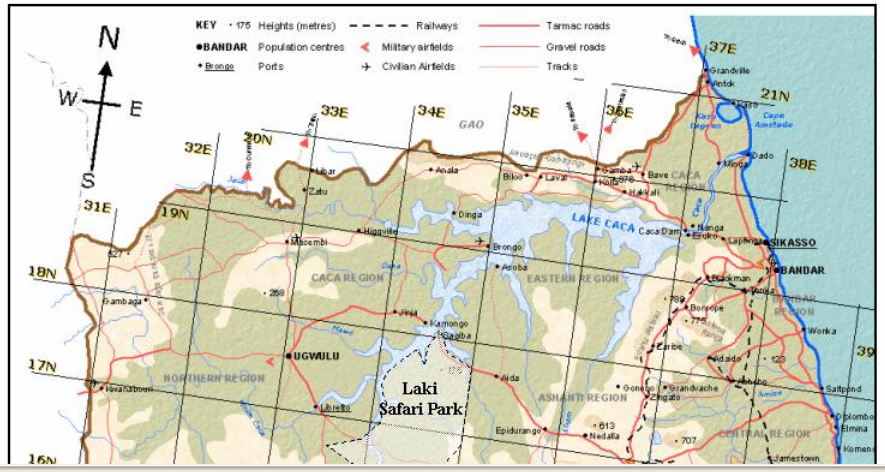
Laki Safari Park is a nature preserve administered by the *World Foundation for the Protection of Wildlife (WFPW)*. Located to the west of Laki in the Binni region of NE Africa, the preserve is home to a wide variety of animal and plant life in a natural setting. While the primary purpose of the preserve is conservancy, ongoing scientific studies monitor wildlife on a continuous basis.

Animal Monitoring at Safari Park

In June 2009, Safari Park began an international exploratorium nature monitoring program. Larger mammals (elephants and lions at present) were fitted with monitoring devices that capture each animal's

- location - latitude, longitude, altitude
- direction of movement
- field conditions - air temperature, humidity
- animal health conditions - body temperature, pulse, blood pressure, basal skin response

Results of key observations are sent at the beginning of each month by wireless email to a central database which the public can query using a natural language interface (try it out - **OBJS MBNLI**). To see how a query about elephant herd location over time might look when plotted on a map, click **map**. Scientists and the public are invited to subscribe to receive periodic updates on their favorite animals (using **OBJS eGents system**) - results are shown here (**status**).



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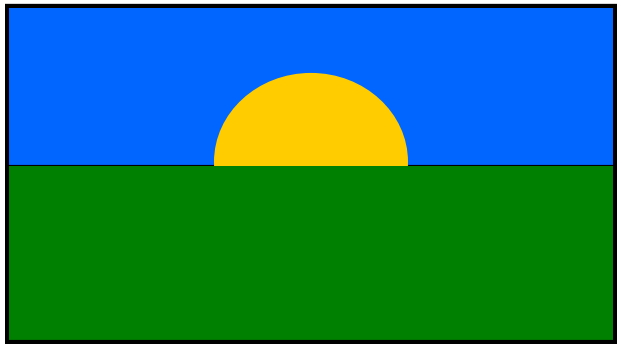
http://www.objs.com/agility/CoAX/Safari-Park/Safari-Park.html

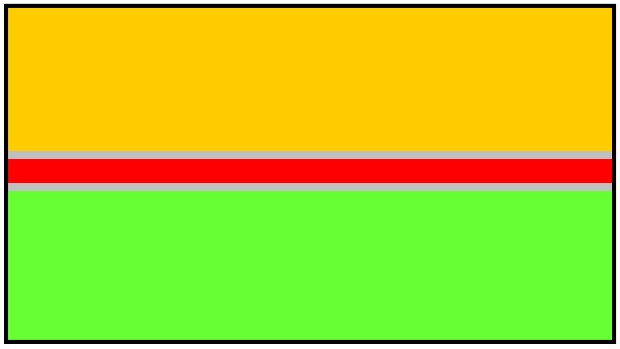
Binni Vexillology

Binni



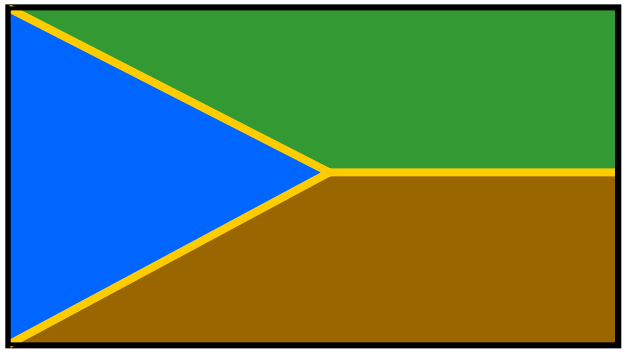
Represents the hopes of the Binni Founding Fathers that the Sun will rise and set in a cloudless sky over a lush and prosperous landscape.

Gao



Reflects the anguish of the history of Gao with nature alternating between poverty and plenty divided by the crimson stained path of tribal conflict.

Agadez



Represents the union of Mountain (blue), Upland (green) and Lowland (brown) peoples of Agadez each maintaining their independence yet united against all opponents.

Arabello

Represents the five fiefdoms of Arabello unified under a sultan of wealth and power.

Binni Scenario Materials

binni.org

or via KSCO web site

Coalition Experiments

- Coalition Logistics 1, 2000 – San Diego, CA, US
- Coalition Logistics 2, 2000 – Malvern, UK
- CoAX Binni 2000 – Malvern, UK
- CoAX Binni 2001 – Malvern, UK
- CoAX Binni 2002 – Newport, RI, USA

Coalition Logistics Challenges

Short/Medium-term In-service 2-5 years

- Define coalition logistics processes for various missions
- Develop shared representation (culture,doctrine, language)
  - ➔ Classes of logistics/deployment assets
  - ➔ Coalition logistics picture for monitoring execution
- Establish coalition access (with accredited security model)
  - ➔ Plethora of logistics systems & databases
  - ➔ Logistics validation models & models
- Demonstrate e-commerce approach to bidding & brokering for logistics capabilities
- Capitalise on planning & scheduling technology

Coalition Logistics Challenges

Long-term In-service 5-10years

- Demonstrate adaptable rapidly re-configurable coalition logistics processes
- Develop shared representation (culture,doctrine, language)
  - ➔ Essential tasks, plans, capabilities & options
  - ➔ Agent capabilities & authority chain/process
- Support complex planning queries
  - ➔ Validated by simulation models at multiple hierarchical levels
- Establish more flexible security domain model

Coalition Logistics Exercise/Workshop

- 5 day duration (3 day exercise + 2 day workshop)
- Objectives
  - Develop coalition plan for prepared scenario
  - Jump-start & refine collaborative programme
- Participants: Logs experts (J4/tech) + 2/4 program managers
  - Exercise lead (J4) - techies on tap & observing
  - Workshop lead (Techies) - J4 on tap & validating
- Inputs
  - Exercise lead (J4) - techies on tap & observing
  - Workshop lead (Techies) - J4 on tap & validating
- Outputs
  - Logistics plan / lessons learned / knowledge acquisition
  - Specific collaboration programme / defined R&D tasks & expts
- Locations/Dates
  - San Diego, USA in May 2000
  - Malvern, UK in September 2000

Coalition Agents eXperiment
http://www.aiai.ed.ac.uk/project/coax/

Context

- Increasing military requirements for coalition operations
- Belief that agent computational model can support:
  - Coalition interoperability requirements
  - Dynamic and Decentralized C3I
- International Agent Research Programmes
  - US DARPA Control of Agent Based Systems (CoABS)
  - UK DSTL/QinetiQ Agents Project
  - Australian and Canadian Agents and Coalition Work
  - TTCP C3I Groups for international involvement
- Need for “middleware” such as is provided by DARPA CoABS Grid Infrastructure

Aim of Coalition TIE

- To address unique aspects of coalition operations through the development and evaluation of:
  - agent domain management services
  - agent task, process and event management services
  - Specific agent services
- Aim will be met through delivery of:
  - Phased technical demonstrations of increasing complexity
  - Integration of diverse agent systems
  - Development of generic Coalition-oriented grid services
- Requirements:
  - Use of a wide variety of different agent systems
  - Use of existing military (non-agent) applications

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Key Technical Drivers

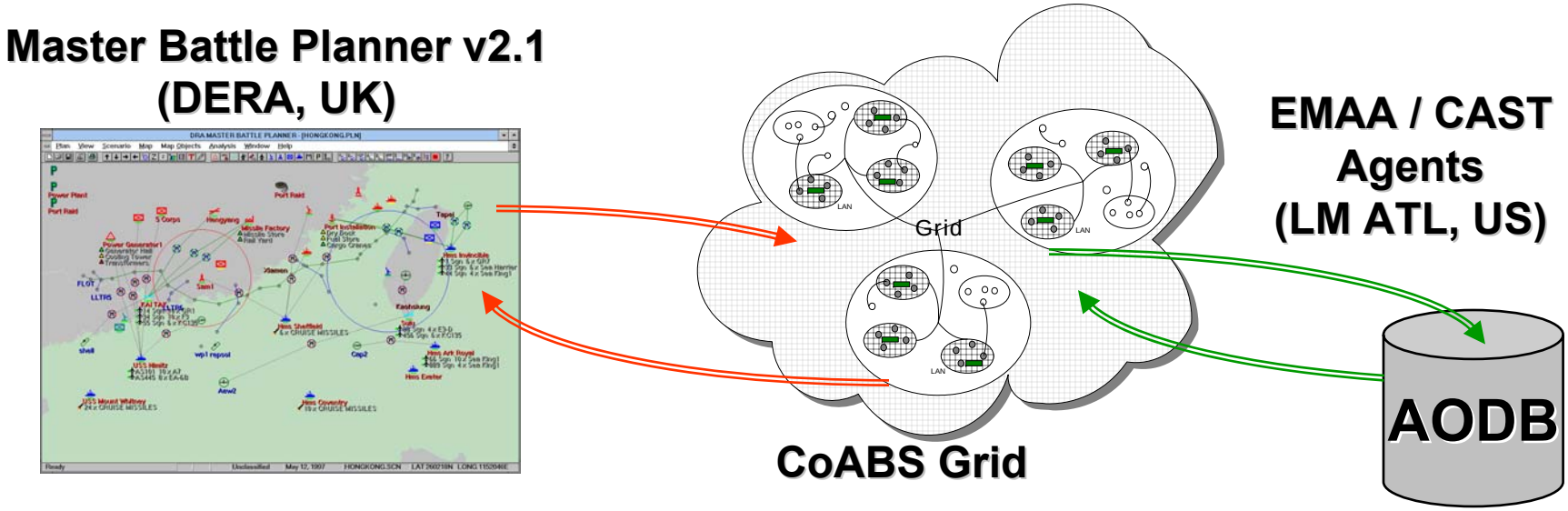
- Cannot assume interoperability, reliability or availability of different nations systems
- Need for partial (secure) sharing and visualization of processes, data and facilities
- Need to work with agents in multiple dynamically determined domains
- Need for flexible inter-agent task and process management
- Need for rapid formation, management and change of agent relationships

Demonstration Schedule

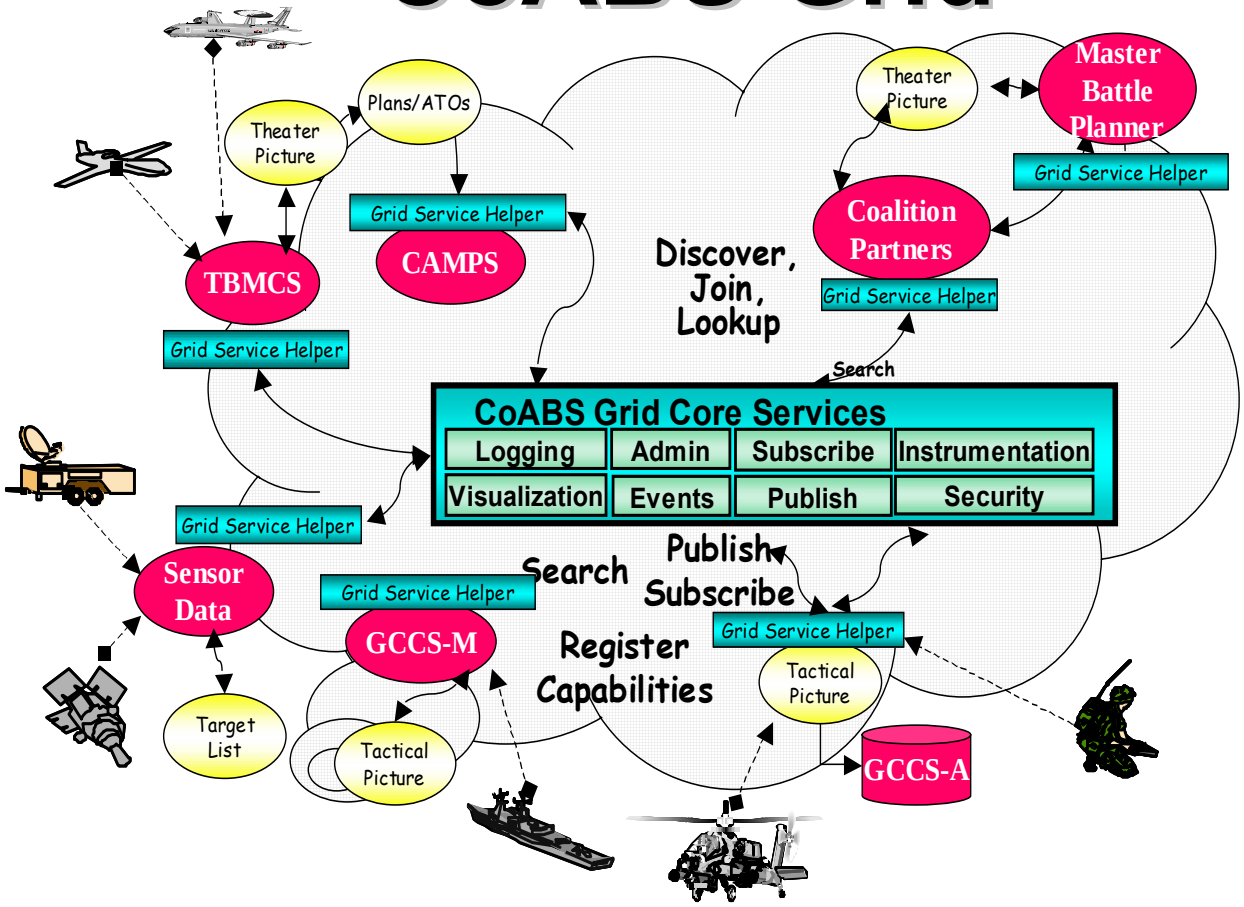
- 1-month demo at kick-off in February 2000 showing direct connection over "CoABS Grid" between two military systems: DERA MBP and LM ATL AODB
- 6-month integration milestone in July 2000 showing initial integration of selected CoAX components for year 2000 demo
- CoAX Binni 2000 demo in Fall 2000:
  - Briefing the CoAX TIE and Binni scenario
  - Showing full integration of selected CoAX components in Binni
  - Telling a relevant "story" about agents for information gathering
- CoAX Binni 2001 demo in Fall 2001:
  - Fully integrating all CoAX components in a rich coalition scenario
  - Expanding scope to cover dynamic re-planning
- CoAX Binni 2002 demo in Fall 2002:
  - Showing dynamic aspects of coalition organization, domain management, tasking and event handling
  - Expanding scope to cover dynamic planning, coordination and execution.

CoAX Month 1 (February 2000) Initial Demo

- Demonstration involves AFRL Rome, DERA Malvern and LM ATL and is a first (risk reduction) step toward CoAX
- Demo shows legacy applications can be usefully integrated into an agent framework (over CoABS Grid)



CoABS Grid



Prototype CoABS Grid allows heterogeneous agent and legacy systems to:

- **Register themselves**
- **Find available resources**
- **Form task-based teams**
- **Advertise their capabilities & needs**
- **Communicate among themselves**
- **Encrypt conversations**

CoAX 6-Month (July 2000) Milestone

- Eleven agents in three separate agent domains representing coalition functional units (JTF HQ, JFAC HQ, Gao Intel)
- Binni scenario information used to drive storyboard
- Tasking and control across coalition functional units
- Visualization of coalition C2 process via a simple process model
- Simple policy administration tool for selective information sharing and communication blocking

CoAX Binni 2000 – Coalition TIE Technology Integration Experiment

TTCP Meeting - Malvern - September 2000

AFRL Rome, AIAI, Boeing, Dartmouth, DERA Malvern, Lockheed Martin ATL, Michigan, MIT Sloan, Stanford, USC/ISI, UWF/IHMC

Support from BBN, GITI, ISX, MITRE, Schafer

http://www.aiai.ed.ac.uk/project/coax/

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CoAX 9-Month (October 2000) Binni 2000 Demo

- Focus on information-gathering phase
- First interoperation of agent-wrapped legacy US and UK systems
- New agents and domains
  - Three additional agent domains (6 domains and ~25 agents)
  - Incorporation of domain-aware CAMPS airlift planning system
  - Ariadne agent providing publicly available weather information
  - More powerful I-X Process Panels
- New domain management functionality
  - Malicious observer agent thwarted by domain management and NOMADS resource control mechanisms
  - KAoS Policy Administration Tool (KPAT) administering communication, registration, and resource policies
- New stand-alone demonstrations:
  - MIT exception handling
  - Stanford incentive management
  - U. Michigan plan deconfliction
  - Dartmouth ‘observer agents’

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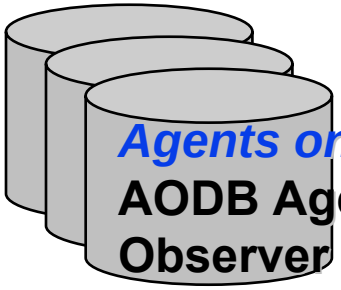
CoAX 2000 Components

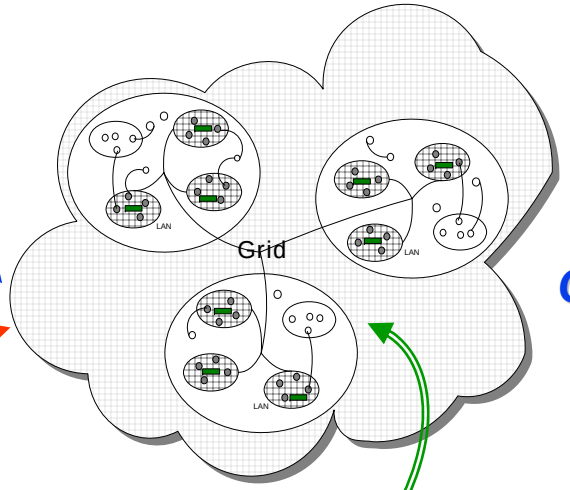


Agents on the Grid

AODB Agent (LM ATL)
Observer Agents (Dartmouth)
Malicious Agents (IHMC, Boeing)
Web Weather Agent (USC/ISI)
…

Agent Frameworks

KAoS Agents (Boeing, IHMC)
D'Agents (Dartmouth)
EMAA/CAST Agents (LM ATL)



DARPA CoABS Grid (GITI, ISX)

Military Systems

CAMPS (AFRL,GITI, BBN)
MBP (DERA)
…

Agent Grid Services

Task and Process Management (AIAI)
Domain Management Services (Boeing, IHMC)
Plan Deconfliction (Michigan)
Exception Handling (MIT)
Incentive Management (Stanford)

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CoAX – Coalition Agents eXperiment

AIAI, BBN, CMU, Dartmouth, DSTO, GITI,
Lockheed Martin ATL, NRL, Potomac Inst., U.Maryland,
U.Michigan, QinetiQ, USC/ISI, UTexas, UWF/IHMC

Support from AFRL, ARL, Boeing, DREV, DSTL, ISX, MITRE,
MIT Sloan, NWDC, OBJS, Schafer, Stanford, TTCP

http://www.aiai.ed.ac.uk/project/coax/

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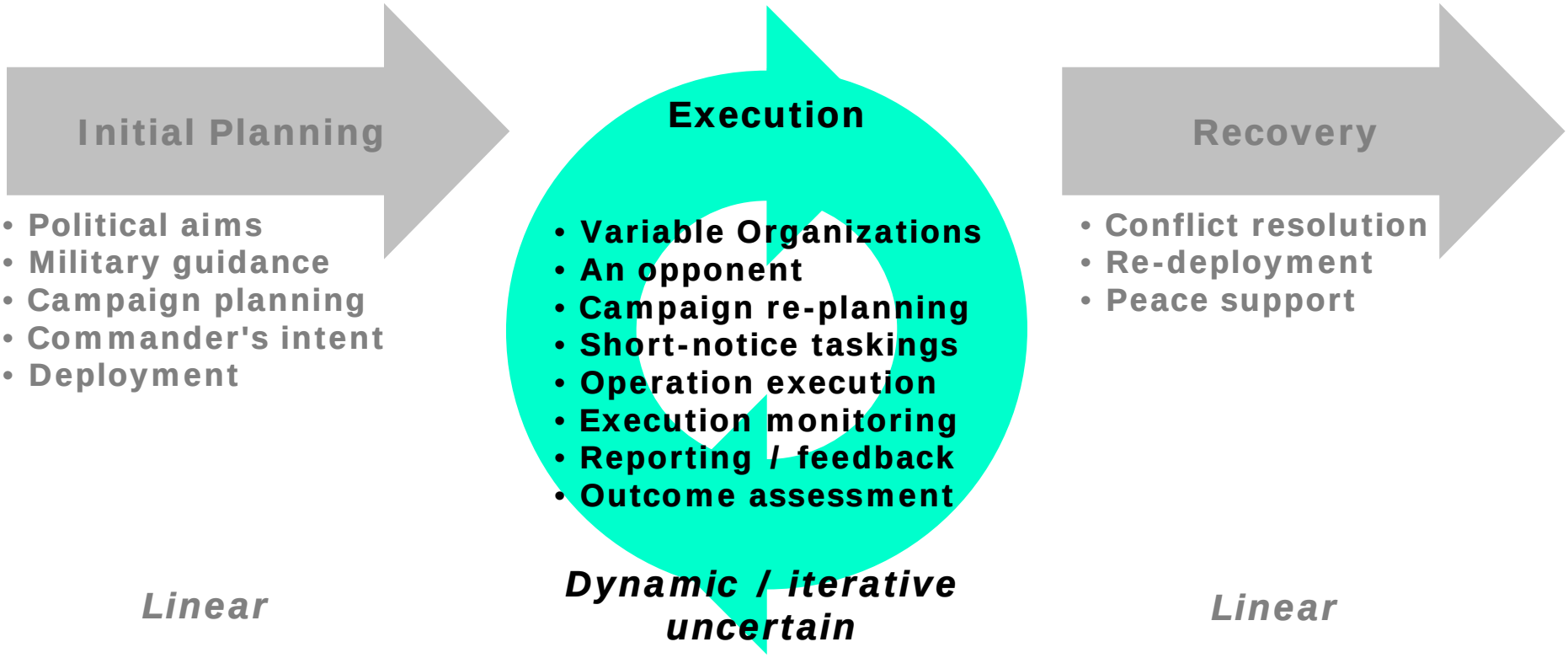
CoAX 18-Month (July 2001) Binni 2001 Demo

- More realism in coalition structures
  - All CoAX members integrated (9 domains and ~35 agents)
  - Coalition agents playing multiple roles in different domains
  - New policies add additional robustness and security
  - Added functionality in process and task management
- Increased scope of Binni scenario demonstration
  - Richer information gathering phase
  - Planning and execution phases of Binni added in
- Incorporating coalition functionality becomes easier
  - Packaging capabilities as pluggable grid services

CoAX Binni 2001 Demo Emphasis



Linear

Dynamic / iterative uncertain

Linear

Focus of the CoAX Binni 2000 Demo

Focus of the CoAX Binni 2001 Demo

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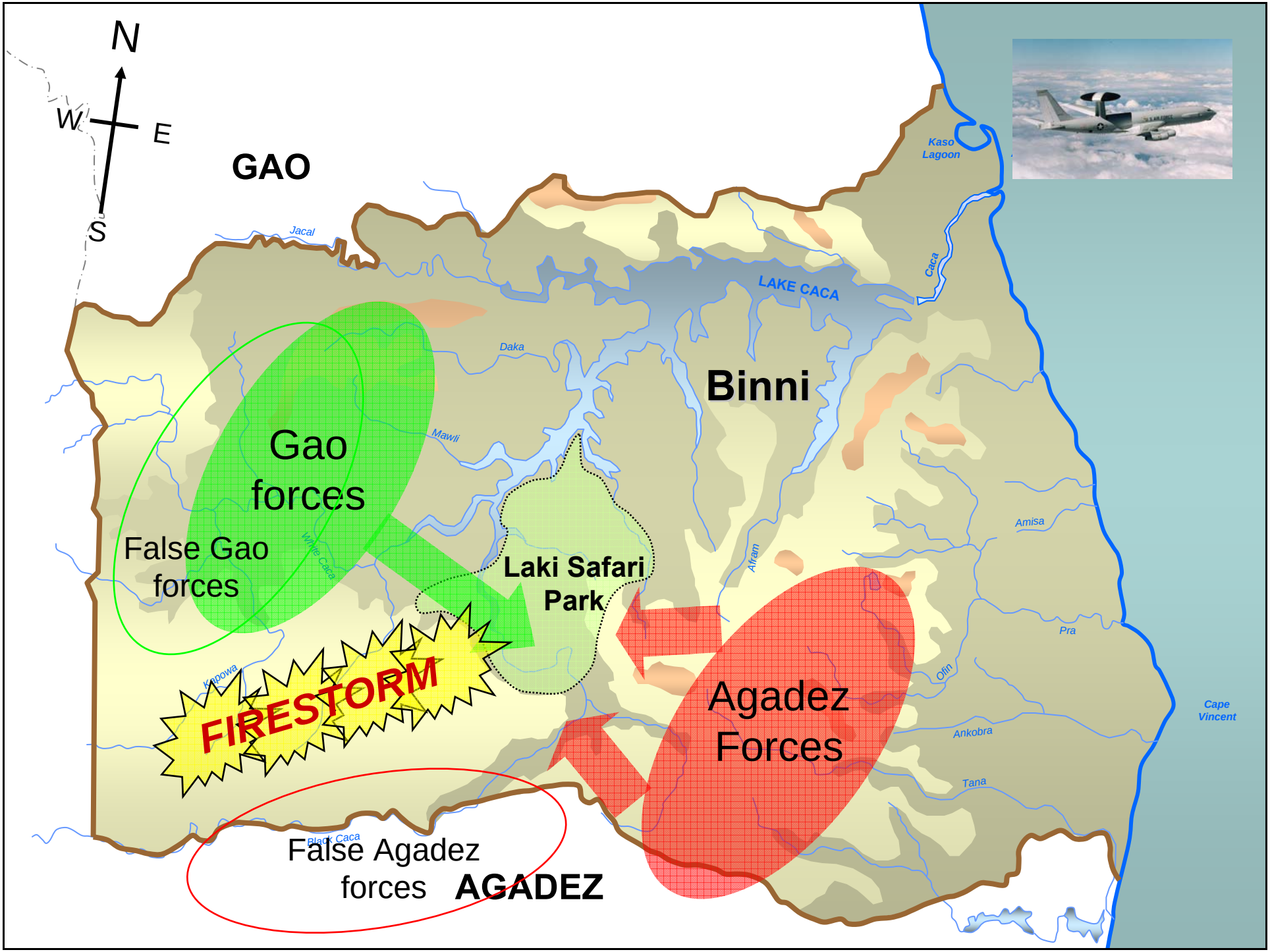
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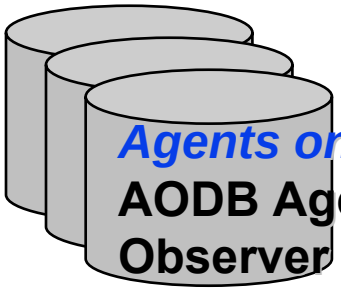
CoAX 2001 Components



Agents on the Grid

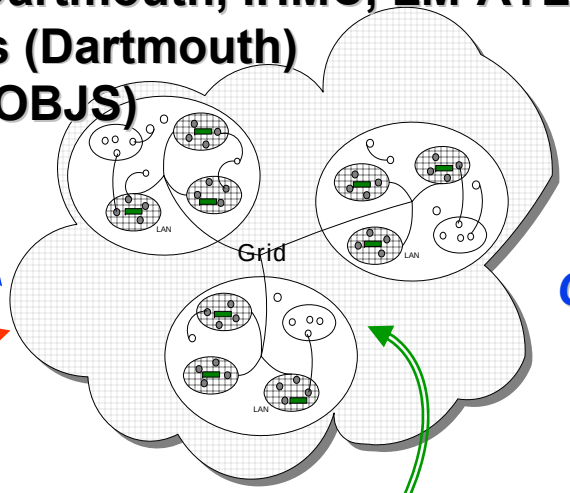
AODB Agent (LM-ATL)
Observer Agents (Dartmouth)
eGents E-mail Agents (OBJS)
Malicious Agents (IHMC)
Web Weather Agent (USC/ISI)
…

Military Systems

CAMPS (AFRL,GITI, BBN)
MBP (QinetiQ)
Situation Viewer (QinetiQ)
…

Agent Frameworks

KAoS Agents (IHMC, Boeing)
NOMADS Mobile Agents (IHMC)
EMAA/CAST Agents (LM-ATL)
GMAS (Dartmouth, IHMC, LM-ATL)
D'Agents (Dartmouth)
eGents (OBJS)



DARPA CoABS Grid (GITI, ISX)

Agent Grid Services

Task, Process and Event Management (AIAI)
Domain Management Services (IHMC, Boeing)
Asynchronous Wireless Connectivity (OBJS)
Plan Deconfliction (Michigan)

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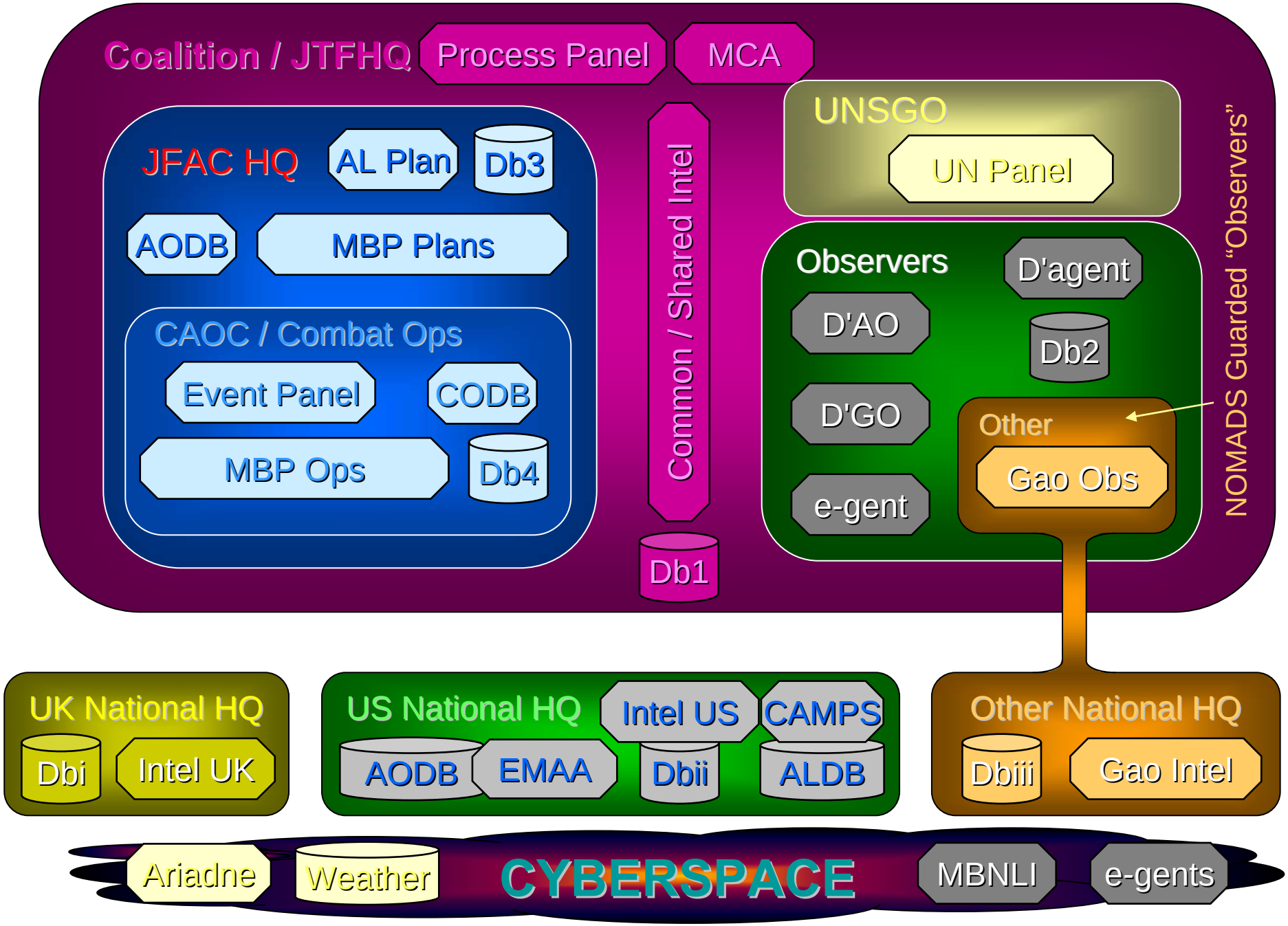
CoAX Binni 2001 Demo - Agent Domains



CoAX – Coalition Agents eXperiment

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Support from AFRL, ARL, Boeing, DRDC, DSTL, ISX, MITRE,
MIT Sloan, NWDC, OBJS, Schafer, Stanford, TTCP, USC/ISI, USPACOM

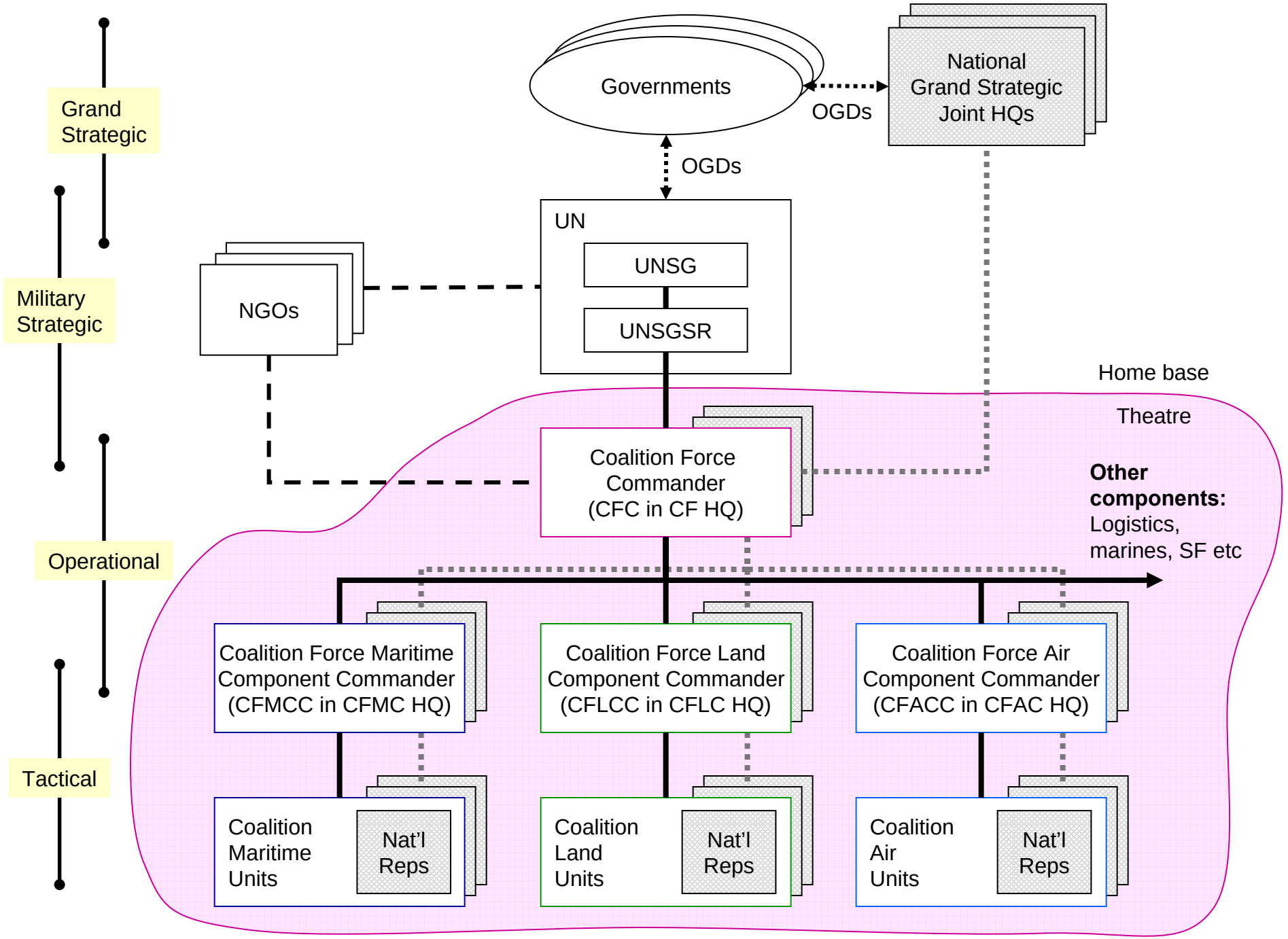
http://www.aiai.ed.ac.uk/project/coax/

CoAX Binni 2002 (Fall 2002) Demo

- Dynamic “come as you are” coalition formation
  - Dynamic creation of ‘virtual coalition organization’
  - Agents and domains added to coalition structure ‘on-the-fly’
  - Dynamic coalition tasks and processes
- Tailored visualizations / interface agents
- Tools to improve human / software agent interaction
- High-level tools usable without specialized training
- Packaged generic Grid services:
  - Domain management and DAML-based policy analysis
  - Task, process, and event management
- Involvement of more countries and organizations
  - USA – BBN – Mixed initiative agents & dynamic information flow
  - Australia – DSTO – Logistics planning and information analysis
  - Canada – DREV – Domain models

Course of Events

- **Part 1:** Agadez submarine attack - agents alert appropriate HQs.
- **Part 2:** Casualty data collected by agents and used to effect timely medevac.
- **Part 3:** A new country, Arabello, joins the Coalition 'on-the-fly' - integrated by agent technologies.
- **Part 4:** Arabello's ASW sensor grid data fused with Coalition - translator agents generated on-demand.
- **Part 5:** Agent-mediated tasking - countermeasures deployed based on predicted locations.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National Grand Strategic Joint HQs
OGDs
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UNSG
UNSGSR
NGOs
Home base
Theatre
Coalition Force Commander (CFC in CF HQ)
Other components: Logistics, marines, SF etc
Coalition Force Maritime Component Commander (CFMCC in CFMC HQ)
Coalition Force Land Component Commander (CFLCC in CFLC HQ)
Coalition Force Air Component Commander (CFACC in CFAC HQ)
Coalition Maritime Units
Nat'l Reps
Coalition Land Units
Nat'l Reps
Coalition Air Units
Nat'l Reps


THE TECHNICAL COOPERATION PROGRAM
TTCP
AIR FORCE RESEARCH LABORATORY
NAVY WARFARE DEVELOPMENT COMMAND
DEFENCE
SCIENCE & TECHNOLOGY
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Object Services and Consulting, Inc.
institute for
Human & Machine Cognition
Schafer
CoABS

CoAX Technology Contributions

- AIAI's I-X Task, Process and Event Panel Technology
- BBN Technologies MPS - Mixed-Initiative Planning and Interaction Agents, Dynamic Agent Information Coordination Protocols, Airlift Mission Planning System Agent.
- CMU's Retsina Grid Agent Communications Visualisation and DAML-S Matchmaker. See here for more details.
- DSTO's Future Operations Centre Analysis Laboratory (FOCAL) and Logistics Planning using the ATTITUDE multi-agent architecture.
- Dartmouth College's Field-observation System and Mobile Agents for Medical Monitoring
- GITI/ISX CoABS Program Grid Infrastructure
- Lockheed Martin ATL's EMAA mobile agent technology, CAST information management agents, and I2AT agent development toolkit
- Michigan's Multilevel Coordination Agent
- MIT's Robustness Service
- NRL's Intelligent Agents for GCCS-M
- OBJS's eGents E-mail Agents and AgentGram
- QinetiQ's Decision Desktop and Master Battle Planner
- Stanford's Market Mechanisms Technology
- UMD's IMPACT agents for reasoning with probabilistic temporal information
- UTexas at Austin's Sensible Agent technology - Trust Evaluation and Organization Adaptation
- USC/ISI's Ariadne Project
- UWF/IHMC and Boeing's KAoS Technology
- UWF/IHMC NOMADS Technology


Maritime
SysAdmin
Australia-HQ

Coalition Search and Rescue - Task Support

Intelligent Task Achieving Agents on the Semantic Web

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Jeff Bradshaw & Andrzej Uszok
IHMC, Pensacola, FL

Artificial Intelligence Applications Institute, University of Edinburgh, UK
Institute for Human and Machine Cognition, Pensacola, Florida

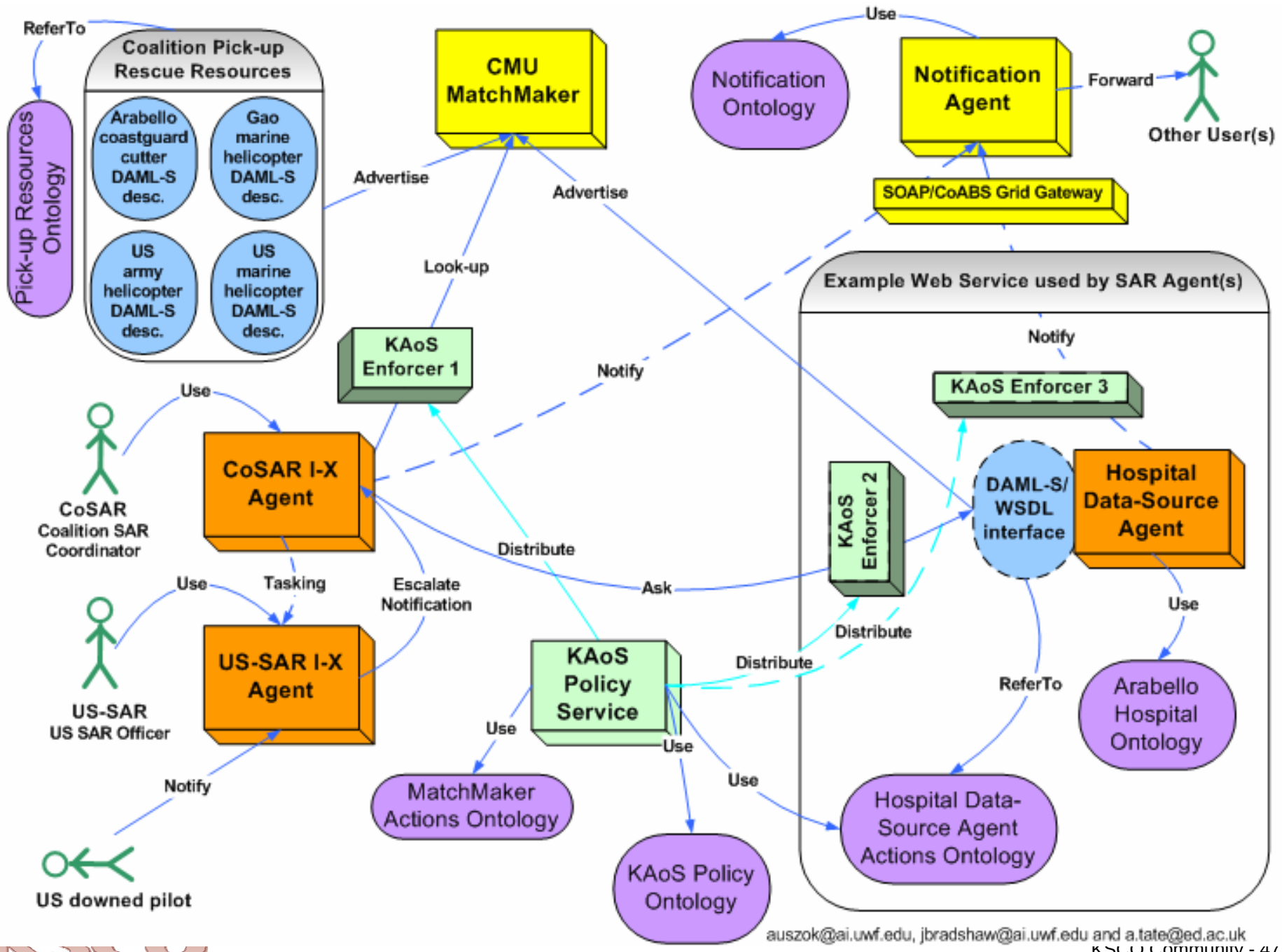

I-X Map Tool
File
30E
35E
40E
45E
20N
15N
AC_Dubh
Abul_El
Riyadell_Med_Center
ARABELLO
GAO
HMAS_Coonawarra
Djebello_El
Red
Sea
Gahwad_El
Gao_Helicopter
PilotDownSea
BINNI
Ugwulu_El
USMarine_Helicopter
Saywun_El
Laki_El
USArmy_Helicopter
USS_Colin_Powell
PilotDownLand
AGADEZ
USS_Mississipi
USS_Michigan
coordinates

Project Summery

- To provide capabilities linking:
  - models of organizational structures, policies, and doctrines
  - with intelligent task support software
- The project integrates:
  - AIAI's I-X planning and collaboration technology
  - IHMC's KAoS policy and domain services
  - Semantic Web Services of various kinds
- Search and rescue operations - rapid dynamic composition of available policy-constrained services - good use case for Semantic Web
- Other participants in the application include: BBN Technologies, SPAWAR, AFRL, and CMU

CoSAR-TS Scenario

- Based on the scenario from the CoAX (Coalition Agents eXperiment) project.
- Follows on from events of Binni 2002
- The story begins with an event that reports a downed airman in the Red Sea
- Rescue resources (transportation, medical, notification) represented as dynamic Semantic Web Services
  - Description based on ontology developed for the DARPA SONAT experiment
- The selection of a SAR resource is made using the CMU Semantic Matchmaker (Sycara) to find a suitable service
- Intelligent Notification done through CMU agents (Sadeh)
- These lookups comply with KAoS policies



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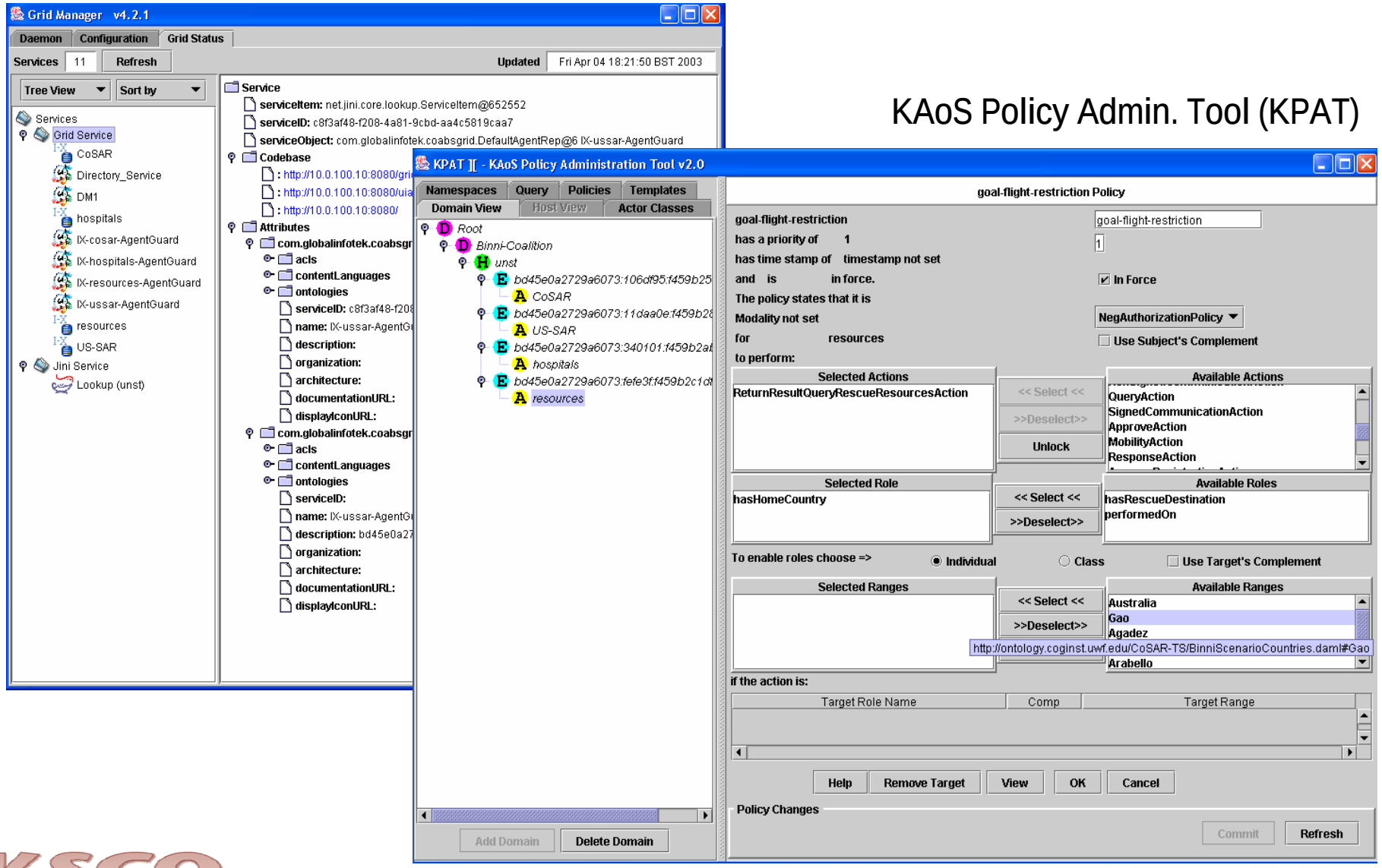
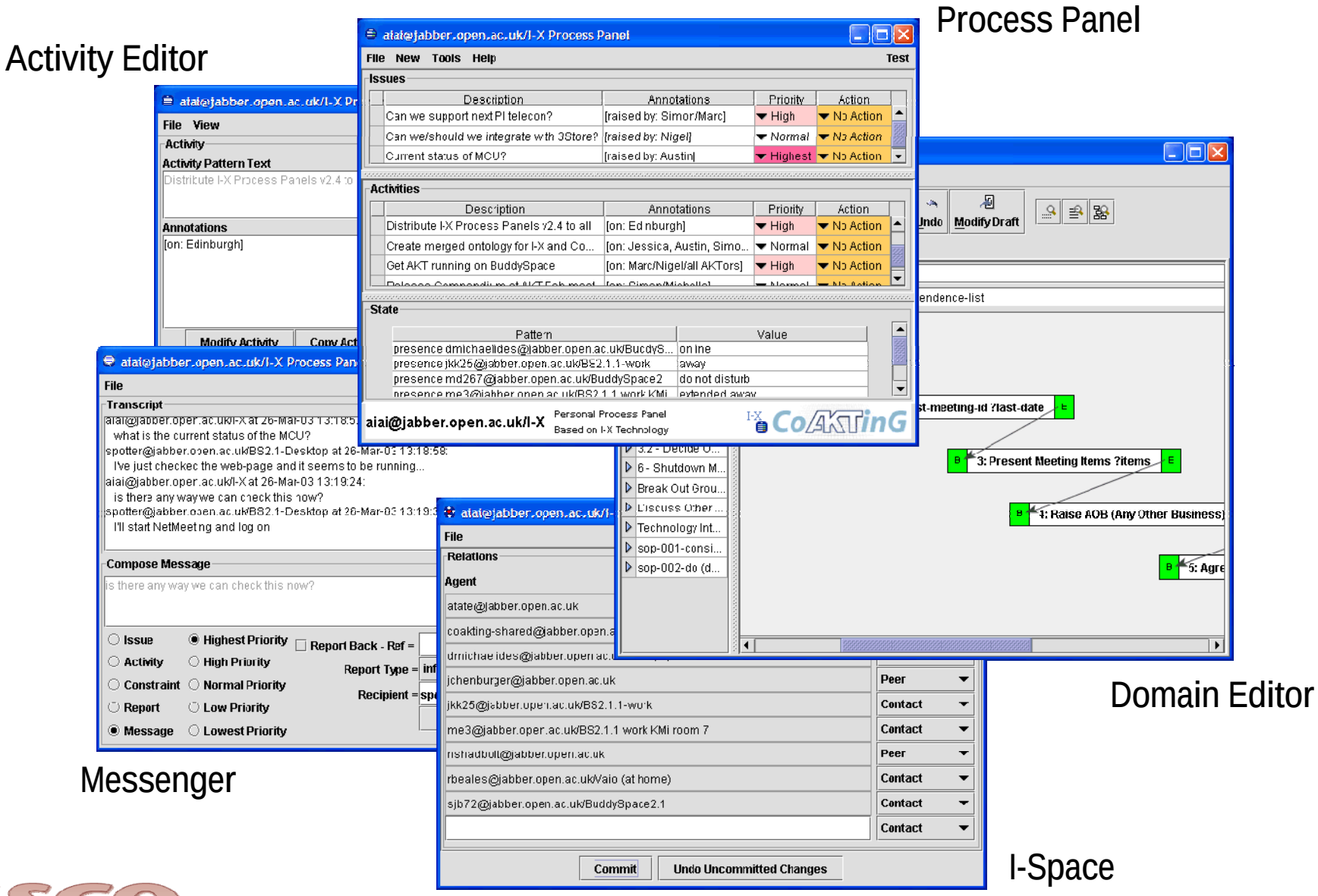
KAoS Domain & Policy Management Tools

CoABS Grid Manager

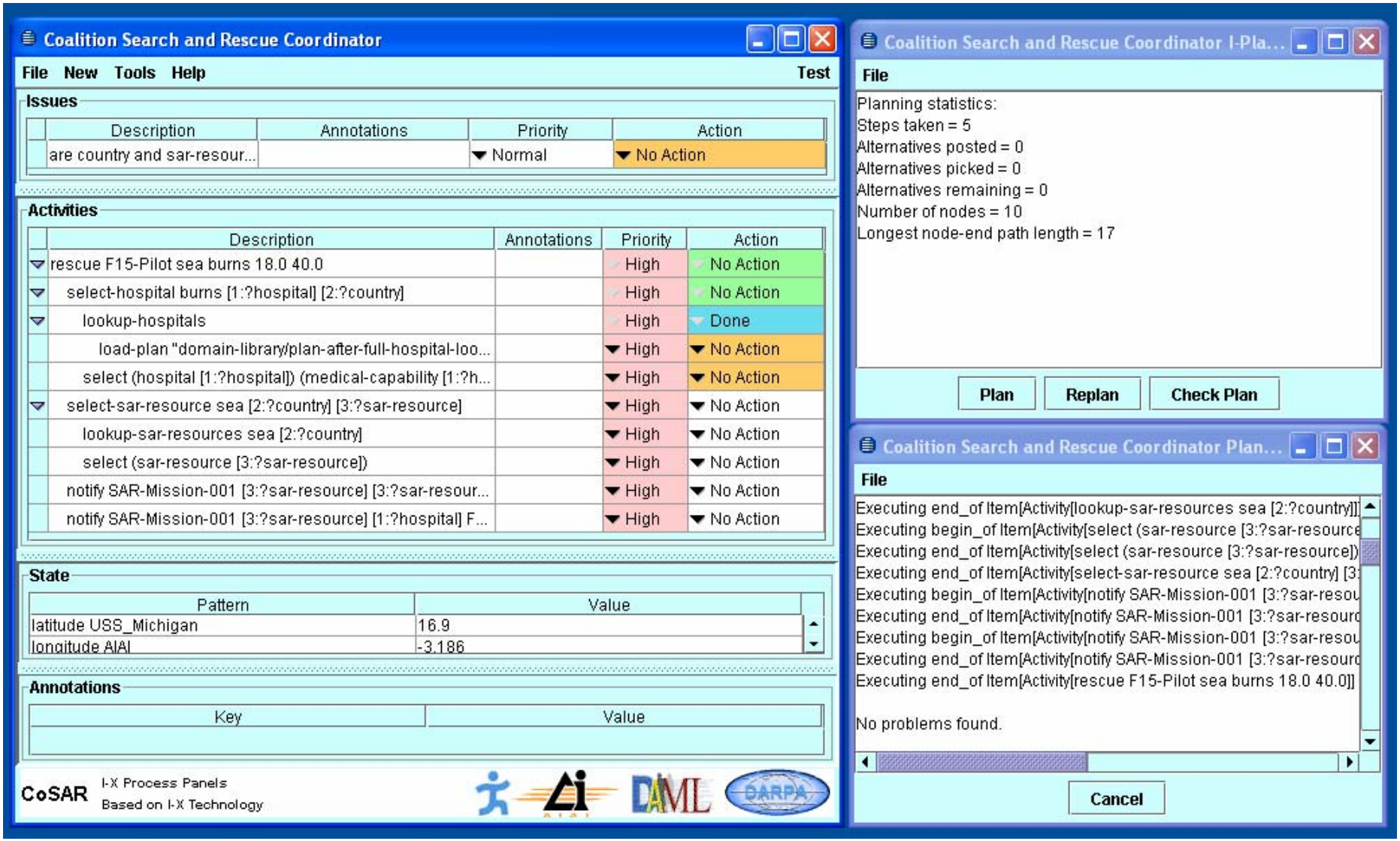
KAoS Policy Admin. Tool (KPAT)



I-X Task Support Tools



I-Plan Tool


Coalition Search and Rescue Coordinator
File New Tools Help Test
Issues
Description Annotations Priority Action
are country and sar-resour... Normal No Action
Activities
Description Annotations Priority Action
rescue F15-Pilot sea burns 18.0 40.0 High No Action
select-hospital burns [1:?hospital] [2:?country] High No Action
lookup-hospitals High Done
load-plan "domain-library/plan-after-full-hospital-loo... High No Action
select (hospital [1:?hospital]) (medical-capability [1:?h... High No Action
select-sar-resource sea [2:?country] [3:?sar-resource] High No Action
lookup-sar-resources sea [2:?country] High No Action
select (sar-resource [3:?sar-resource]) High No Action
notify SAR-Mission-001 [3:?sar-resource] [3:?sar-resour... High No Action
notify SAR-Mission-001 [3:?sar-resource] [1:?hospital] F... High No Action
State
Pattern Value
latitude USS_Michigan 16.9
longitude AIAI -3.186
Annotations
Key Value
CoSAR I-X Process Panels
Based on I-X Technology
Coalition Search and Rescue Coordinator I-Pla...
File
Planning statistics:
Steps taken = 5
Alternatives posted = 0
Alternatives picked = 0
Alternatives remaining = 0
Number of nodes = 10
Longest node-end path length = 17
Plan Replan Check Plan
Coalition Search and Rescue Coordinator Plan...
File
Executing end_of Item[Activity[lookup-sar-resources sea [2:?country]]]
Executing begin_of Item[Activity[select (sar-resource [3:?sar-resource
Executing end_of Item[Activity[select (sar-resource [3:?sar-resource])]
Executing end_of Item[Activity[select-sar-resource sea [2:?country] [3
Executing begin_of Item[Activity[notify SAR-Mission-001 [3:?sar-resou
Executing end_of Item[Activity[notify SAR-Mission-001 [3:?sar-resourc
Executing begin_of Item[Activity[notify SAR-Mission-001 [3:?sar-resou
Executing end_of Item[Activity[notify SAR-Mission-001 [3:?sar-resourc
Executing end_of Item[Activity[rescue F15-Pilot sea burns 18.0 40.0]]
No problems found.
Cancel

CoSAR-TS Results

- Initial Coalition SAR scenario defined
- SONAT ENP data base extended with Binni data
- Direct DAML file processing from I-X to SONAT via HP JENA Toolkit
- SOAP Access to SAR Resources from KAoS and I-X via Katia Sycara's CMU MatchMaker and MM client code
- I-X linked to Norman Sadeh's CMU context-aware Notification Agent for personalised notifications
- KAoS policy-governed access to SAR Resources
- Initial demonstration framework with CoSAR and US-SAR I-X Panels and 2 Information Access Agents
- Integration of BBN OpenMap with I-X Process Panels


KSCO
The KSCO Community and its Coalition Experiments
http://www.aiai.ed.ac.uk/project/ksco/

KSCO Further Information and Involvement

- KSCO, Binni, CoAX materials and documentation:
  - http://binni.org
  - http://www.aiai.ed.ac.uk/project/ksco/
  - http://www.aiai.ed.ac.uk/project/coax/
- We encourage your participation…
  - In addressing key coalition and technical drivers
  - In seeking operational opportunities
  - In future demonstrations

End of KSCO Community Presentation