



CJMTK Implementation in Force XXI Battle Command Brigade and Below (FBCB2)

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Agenda

- System Overview
- Current GIS Implementation
- Transition to CJMTK
- Issues
- Lessons Learned
- Path Forward

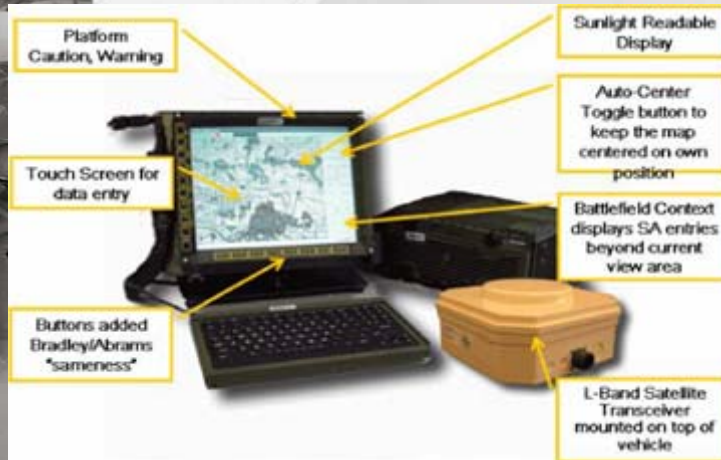
Force XXI Battle Command Brigade and Below (FBCB2) EPLRS/BFT LBand v6.4.4.2



System Description

FBCB2 is a digital battle command information system providing integrated, on-the-move, timely, relevant battle command information to tactical combat leaders & soldiers from upper command echelons to platform & across platforms within the extended battlespace. It allows Warfighters to pass orders & graphics to visualize the commander's intent & scheme of maneuver. FBCB2 is a key component of the Army Battle Command System (ABCS). FBCB2:

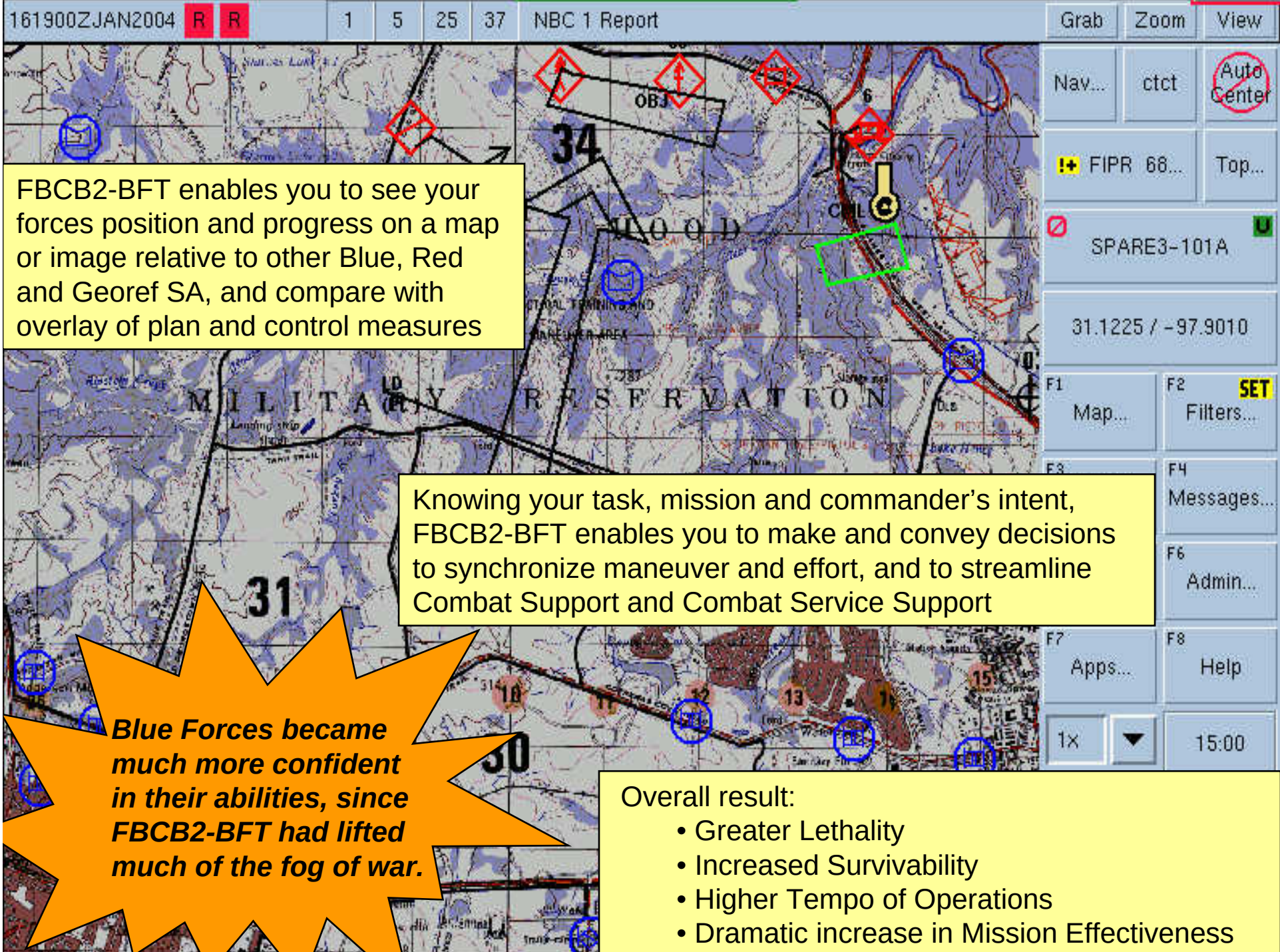
- Enables synchronization of maneuver & fires through shared situational awareness
- Provides leaders with capability to navigate confidently in unknown terrain & during reduced visibility
- Automatic Friendly Situational Awareness (SA) and display of reported enemy/battlefield hazard SA
- SA Interoperability with select US and Coalition BFT Systems in operational theaters



Quick Facts

- **Program Level:** ACAT IC
- **Milestone Decision Authority:** AAE (program decisions delegated to PEO)
- **Acquisition Phase:** Full Rate Production (Aug 2004)
- **Army Procurement Objective:** 103,186
- **Production:** +65K fielded
 - Capacity: ~800 systems/week (ground)
- **Current SW:** v6.4.4.2

Current HW: eV4 & JV5





Current GIS Implementation

- Tactical Mapping Tool Kit (TMTK)
 - Written in 1997 by TRW for USMC
 - Taken over by FBCB2 program in 1999
 - Written mostly in C
 - Limited mapset support
 - NGA products: CADRG, CIB, VPF and DTED
- Graphical Situational Display (GSD)
 - Produced by Army Space Program Office
 - No longer supported and source code not available

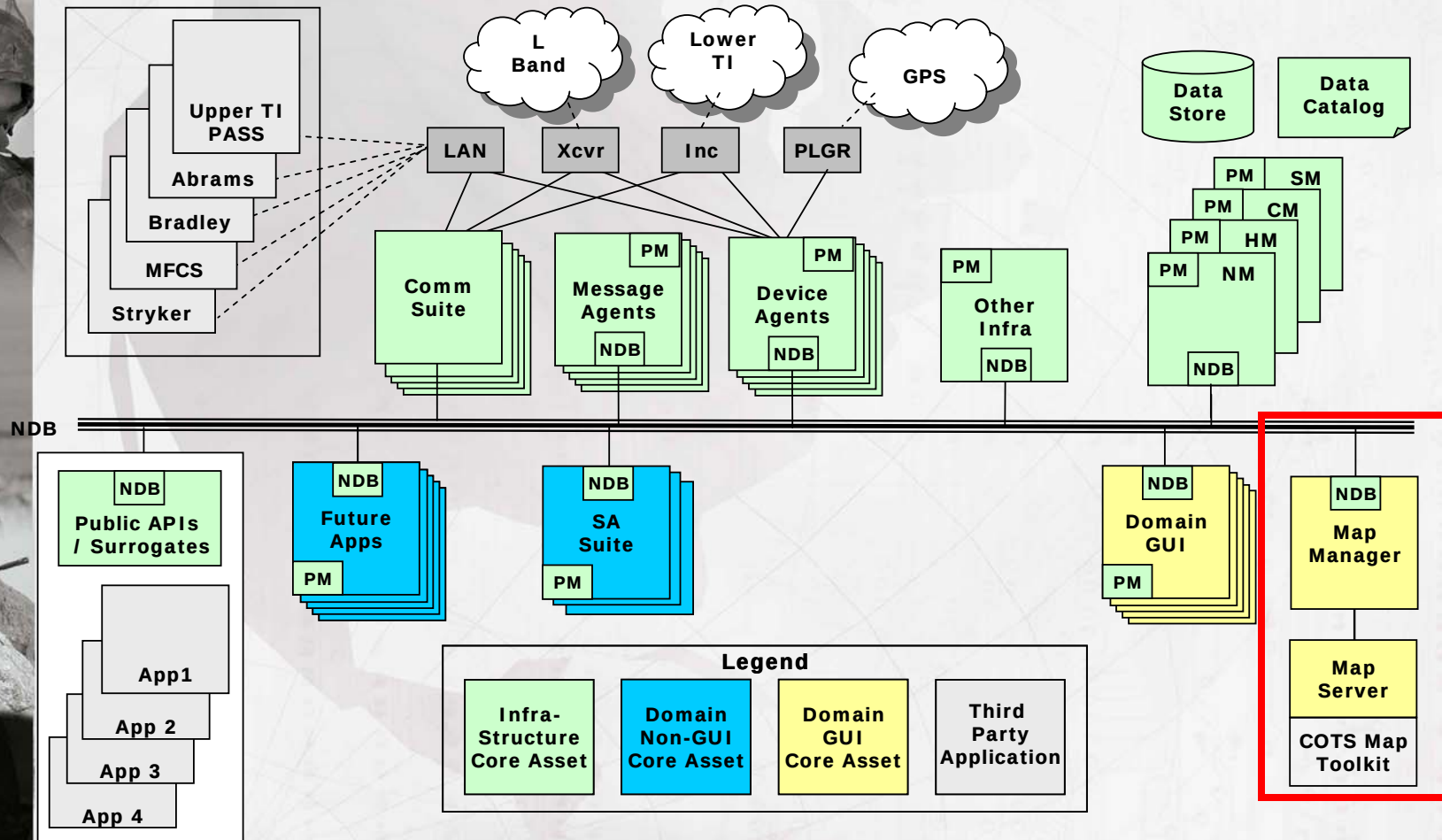


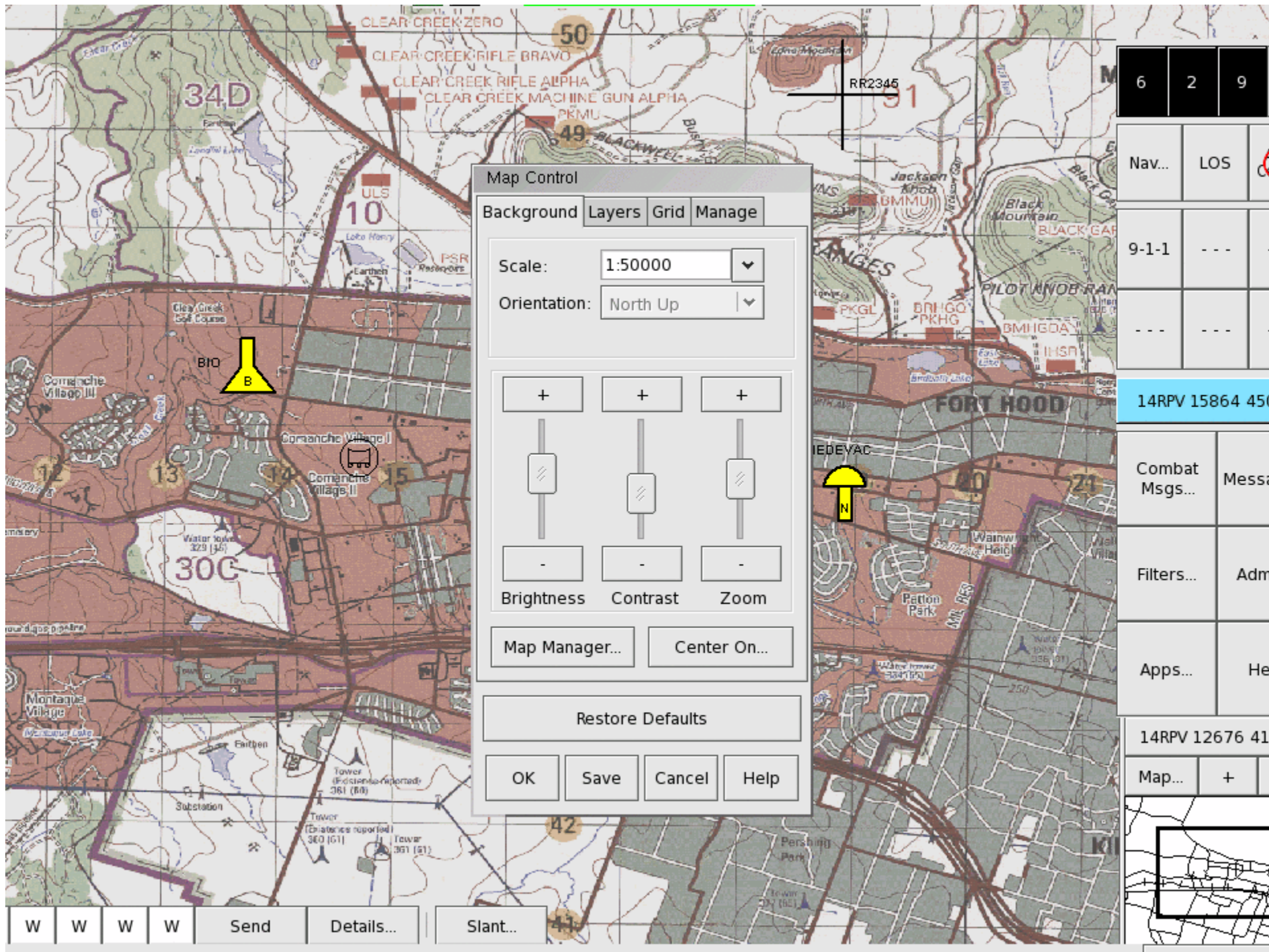
Decision to Move to CJMTK

- Rearchitecture of FBCB2 program using a product line approach allowed GIS implementation to be abstracted from actual toolkit being used
- Current toolkit not maintainable
 - New functionality required significant rewrite
 - New GIS data types not supported
- Licensing costs of other potential mapping kits
- Availability of Linux version
- Desire to have common GIS implementation with other battle command systems
 - MIL-STD-2525 Symbolology
 - Look and Feel



Software Architecture







FBCB2 CJMTK Implementation

- Using the following CJMTK products under RedHat Enterprise Workstation 4
 - ArcGIS Engine v9.3 with SP1
 - Military Overlay Editor(MOLE) v9.3
 - Military Analyst (MA) v9.3
- Largest user of CJMTK



Advantages

- Outstanding support for GIS data types
- Flexibility
- Analysis tools part of CJMTK suite
 - Previously, many tools had to be developed/maintained in-house
- Large suite of advanced tools and third party applications available
- Cost



Issues

- Resource overhead
 - Memory and CPU utilization
- Availability of Linux applications
- Performance
- Large learning curve for developers
- Flexibility
- Symbology rendering issues
- Does not guarantee common look and feel across systems



Lessons Learned

- Much more work needed in upfront design
 - Performance must be designed in from the beginning
- New versions are not drop in replacements
- Utilization of CJMTK/ESRI team for design is well worth the time/cost
- NGA CJMTK team extremely supportive of our effort



Questions?

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