Mexico’s National Command and Control Center Challenges and Successes

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Agenda

- Introduction
- Background
- Project Particulars
- Challenges
- Conclusions
Introduction

- Acknowledgement of paper’s contributors
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National Command & Control Center
Project Particulars
SSP Bunker - Operations

- Operates 24X7
- National nerve center for law enforcement and civilian emergencies
- Co-location with stakeholder representatives
- Plataforma Mexico is the operational core
- Uses over 60 software applications
- Has a database of nearly 300 million records
- Reaches out to 7 Central American countries
- Communicates with state and federal governments
Mexico Regions and State Locations
Stakeholders

- **Direct**
  - Federal Police (SSP)
  - Army & Navy (Sedena, Semar)
  - Civil Protection (Protection Civil)
  - Strategic Facilities (PEMEX, CFE, Conagua, Banxico)

- **Indirect**
  - Local Police
  - Local Emergency Responders
  - Immigration (INM), CIA (Cisen), Judicial (PGR)
  - Public
Challenges
Four Challenges

1. Creating Common Operational Picture (COP)
2. Secure real-time communications
3. Improved response between local responders and federal police
4. Scalable information sharing
Common Operating Picture (COP) CHALLENGE 1

- Bunker has 4 independent quadrants
- Two unconnected management systems
- No common reporting format
- No common tagging of incoming data
- Historical data unmanageable
- Poor coordination of emergency resources
Define: Common Operating Picture

Goals:
- Situational awareness of actual conditions
- Dynamic accurate update of field conditions
- Real-time analysis of conditions
- Integration of local response plans with central (Bunker)
- Empowerment of decision makers
Where does COP fit?

Integrate and analyze data (1st row)

Actionable intelligence and decision making (2nd row domain experts)

Disseminate situational awareness (3rd row Policy level)
Quadrant 1 – Special Operations (SSP, PFP)

Quadrant 2 – Strategic Installations (CONAGUA, PEMEX, LYF, CFE, Banxio)

Quadrant 3 – Public Security (SEDENA, SEMAR, CISEN, PGR)

Quadrant 4 – Civil Protection (CENACOM, CENAPRED)

Central Conference Room
Bunker – 2 of 4 Quadrants
Center Conference Room
Video Wall
Common Operating Picture SOLUTION

- Unite the four quadrants and others
  - Common Crisis Information Management System (CIMS)
  - Interface the CIMS with the Law Enforcement System (Plataforma)
  - Link the video walls with a common incident area
  - Unify the incident data with an universal identifier
  - Use common incident reference scheme
Link Law Enforcement with Crisis Information Management

Plataforma and CIMS
Crisis Management

- Civil Protection / National Alerts
- Strategic Installations / GCIE
  - Automates business flow (CIMS)
  - Avoid double entries
  - Enhances situational awareness
    - Real-time updates
    - Organized intelligence
    - Verified data
  - Clearly defined reporting hierarchy
    - Users, groups, roles, positions
Evaluar las Necesidades del Incidente
Sensitive data flows between agencies
  - Law enforcement & military data

Plataforma network covers the nation
  - National crisis can occur anywhere

Addition connections to US and neighbors
  - Information sharing to catch bad guys

Inter-agency communications reliability
  - Telecommunications companies sometimes dicey

Broadband needed at key facilities
  - Video, audio, video conference, cartography, news, security
Plataforma Statewide Network

**Coverage**
- 32 States
- 863 Federal, State and Municipal Entities.
Wide Area Network

77 NIT’s Connected Nationally

NIT = Telecommunications and Interconnection Node

State Prisons
State Attorney
Finance
State Public Safety
State Courts
State Academies
Minor Detention Center
Local Police
SUBNIT
SUBNIT

NIT = Telecommunications and Interconnection Node

77 NIT’s Connected Nationally
## Security on the Network

<table>
<thead>
<tr>
<th>Privileges by roles</th>
<th>Integrated Security to Plataforma México</th>
<th>The Carrier does not have access to security administration</th>
<th>Encrypted communication reaching databases</th>
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<tbody>
<tr>
<td>Authentication</td>
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<td>Virtual Private Network per user</td>
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<tr>
<th>Police Station</th>
<th>NIT State Network</th>
<th>MPLS Supplier</th>
<th>CNIT Servers</th>
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Security operated by PLATAFORMA MÉXICO
Secure Real-time Communications

**SOLUTION**

- Agencies with Mexico City are hubs
  - Connected by private gigabit fiber network
  - Private is more secure and reliable

- Use of public network between NITs
  - Critical links are private fiber
  - Other links use encryption and VPN
Policy problems
- Key agencies were hesitant to share local data
- Didn’t want to relocate personnel to Bunker
- Civil Protection and GCIE procedures sometimes conflicted with SSP

Technical problem
- Local manual processes greatly slowed response time and data accuracy
Central (Mexico City)

SSP Federal Police

Navy & Army

SSP National Alerts

SSP Strategic Facilities

Quadrant Video Walls
Distribute the system
- Provide key agencies with common CIMS solution
- Provide the hardware and software
- Allow agencies to tailor the CIMS for their needs
- Allow agencies to control information filters
- Provide standard methods of information exchange
Scalable Information Sharing

CHALLENGE 4

- Connections difficult to scale and maintain
  - Many customized inter-agency interfaces
  - Most use point-to-point communications
  - No common message format
Collaboration = Many Interfaces

Emergency Services

State Police

Federal Police

Local Police

Citizenship

International Agencies

Federal Entities

Attorneys

Courts
Enterprise Service Bus Solution

BUNKER
- Law Enforcement
- Other SSP Shared Services
- CIMS

PLATAFORMA MEXICO NETWORK BACKBONE - SSP
- Transformation
- Monitoring
- Security
- Routing

Civil Protection
GCIE
Other Agencies

Other SSP
Shared Services

CIMS
Information Exchange Server

[Diagram showing the network topology with servers, workstations, and routers connected through the internet, highlighting different centers with specific server configurations.]
Scalable Information Sharing
SOLUTION

- Standardize the system-to-system interfaces
  - Enterprise Service Bus
  - Web services
- Eliminate point-to-point
  - Message broker
  - Information Exchange Server
- Standardize the message format
  - National Information Exchange Model (NIEM)
  - Emergency Data Exchange Language (EDXLI)
The Bunker design was initially focused at Law Enforcement

Design expanded to overcome some major institutional challenges

That design integrated CIMS internally and nationwide – both system & network

The result is a effective and world-class emergency operations center
Questions

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