



# Overview of the P25 ISSI, ISSI.1 NGW and the Texas Talks Trial

*Prepared for the State of Louisiana SIEC Technical Committee*

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**Baton Rouge, LA**

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**Interoperable Solutions, Director of Product Management**

**Worldwide Radio Solutions**

**Motorola`**



- **ISSI**

- **Definition and Benefits of the P25 ISSI Standard**
- **Connecting to P25 Trunked Networks**
- **P25 ISSI Standards Progress**
- **ISSI Progress in the Industry**
- **ISSI Use Cases**
- **ISSI.1 Network Gateway Overview**

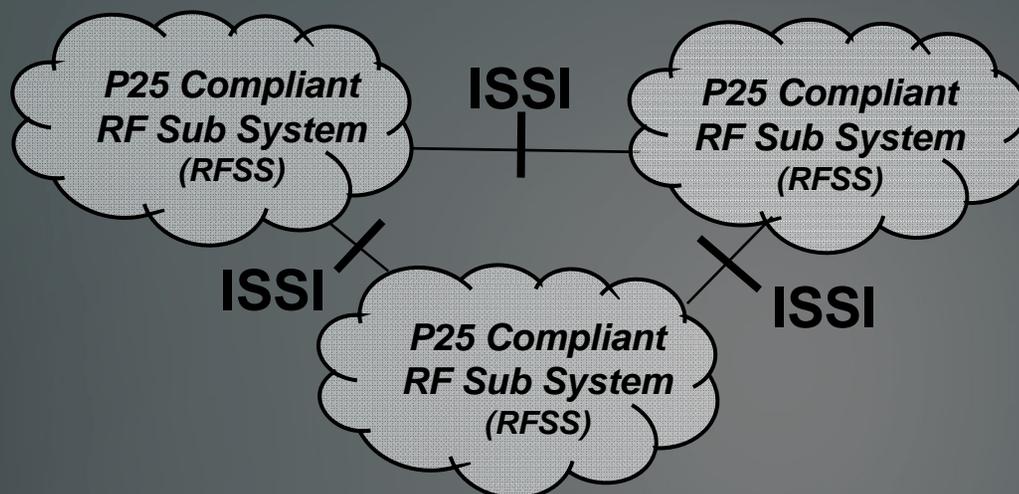
- **Texas Talks Trial Overview**

- **Background and Overview**
- **Expanding to include Louisiana**
- **What the Motorola Interop Solutions team will do**
- **What we need from you**

# P25 ISSI Defined



## Trunked P25 Inter-RF Sub-System Interface (P25 ISSI)



- The P25 ISSI is an interface specification which when implemented enables two or more disparate, trunked P25 RFSSs to be connected at the network layer in a manner which provides voice and data services, end-to-end encryption and roaming.

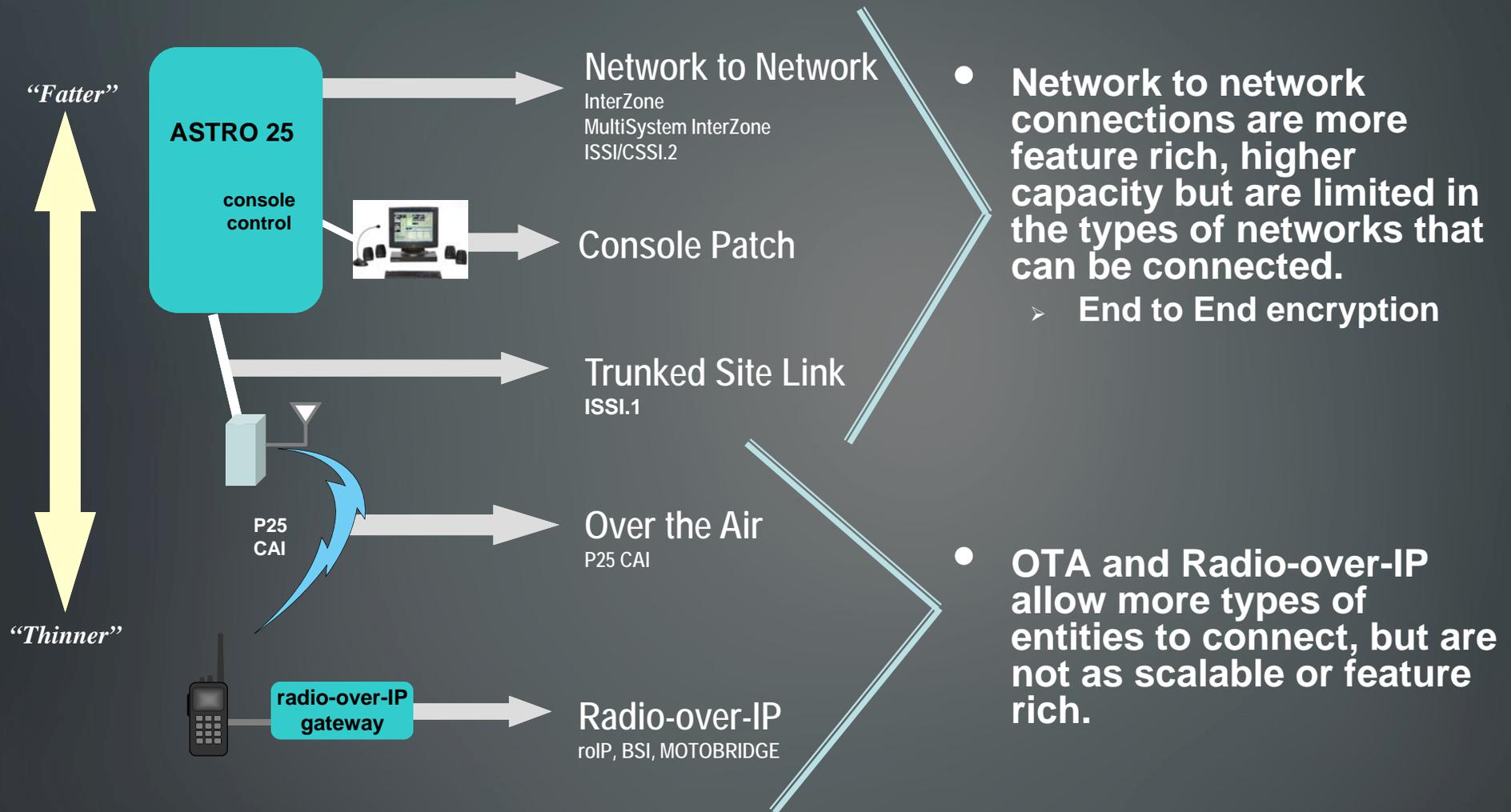
# P25 ISSI Customer Benefits



*Based on customer and consultant feedback.*

- **Establish long term interoperability option with neighboring networks, regardless of how they evolve and change**
- **Delivering connectivity while maintaining autonomy**
- **Delivering Task Force Interoperability**
- **Connectivity between ASTRO 25 systems of mixed vintages**
- **Support of mixed vendor backbones**
- **Coverage extension**

# Connecting to P25 Trunked Networks



# Progress of P25 ISSI Standard

## Status

Green = Published
Blue = Balloted
Orange = Approved to Publish
Lavander = Approved to Ballot
Grey = Not a Standards Doc
Tan = New doc, for review purposes

- Initial ISSI Gateways focus on ISSI Voice and Mobility Services

- The CSSI has been integrated into the ISSI suite...and operates over the same link.

- Working on developing consensus for Next Steps for ISSI:

- Phase 2 TDMA
- Link Keep Alive
- IPv6

	Document Name	Document Number	Authors	(Expected Ballot)
<b>A ISSI Voice and Mobility Services</b>				
1	Overview	TSB-102.BACC	Nortel	Published 12/03
2	Messages and Procedures for Voice and Mobility Services	TIA-102.BACA-A	Nortel/EADS/MACOM/Motorola	Published 01/09
3	Measurement Methods	TIA-102.CACA	ITS/Motorola	Published 04/07
4	Performance Recommendations	TIA-102.CACB	ITS/Motorola	Published 04/07
5	Conformance Test	TIA-102.CACC	EADS/Motorola	Published 01/09
6	Interoperability Tests	TIA-102.CACD	Motorola	Started Oct 2007 [2H 08]
7	End Point Behaviors (EPB)	Not a Standard	Motorola	Not a Standard
8	Trunking Procedures Update	TIA-102.AABD	Motorola	Published 08/07
9	Link Control Formats Addendum	TIA-102.AABF-A-2	MACOM	Published 05/07
10	Control Channel Message Addendum	TIA-102.AABC-B-2	Motorola	Published 08/07
11	Trunking Conformance	Not Assigned (PCP3?)	Not Assigned	Not started [Unknown]
12	Trunking Interoperability Revision	TIA-102.CABC-B (revision)	Motorola (Todd Leigh)	Not started [Unknown]
13	Trunking Interoperability Addendum	TIA-102.CABC-A-1	Motorola	Out for review in ISSI TG [2H 09]
14	ISSI RCAT TSB			
15	Trunking Voice RCAT Addendum	TIA-102.CBBJ-A	Motorola (Todd Leigh)	Balloted on June 3
<b>B Supplementary Data ISSI</b>				
1	Overview	Not planned	None	
2	Supplementary Data Mobility Management	TIA-102.BACA-A	Nortel/EADS/MACOM/Motorola	Published 01/09
4	Messages and Procedures Revision A	TIA-102.BACD-A	Motorola	Published 03/2008
5	Messages and Procedures Revision B	TIA-102.BACD-B	Motorola	in ISSI TG Jan 2009 [2H 09]
6	Measurement Methods	Not Assigned	Not Assigned	Not started
7	Performance Recommendations	Not Assigned	Not Assigned	Not started
8	Conformance Test	Not Assigned	EADS/Nortel	In ISSI TG June 2008 [1H 09]
9	Interoperability Tests	Not Assigned	Not Assigned	Not started
10	End Point Behaviors (EPB)	Not a Standard	Motorola (Todd Leigh)	Not a Standard
11	Link Control Addendum for Supp data ISSI	TIA-102.AABF-A-3	Motorola (Todd Leigh)	Published 02/2008
12	Control Channel Addendum for Supp Data ISSI	TIA-102.AABC-B-3	Motorola (Todd Leigh)	Published 02/2008
13	Trunking Conformance	Not Assigned (PCP3?)	Not Assigned	Not started [Unknown]
14	Trunking Interoperability Revision (same as row 52)	TIA-102.CABC-B (revision)	Todd Leigh	Not started [Unknown]
15	ISSI Supp Data RCAT			
<b>C Packet Data / OTAR ISSI</b>				
1	Overview	Not planned	None	
2	Addendum to ISSI Scope 1 M&P BACA-A	BACA-A-1	EADS/Nortel/Motorola	Approved for ballot April 28
3	Messages and Procedures	Not Assigned	EADS/Nortel/Motorola	Approved for ballot April 28
4	Measurement Methods	Not Assigned	Not Assigned	Not started
5	Performance Recommendations	Not Assigned	Not Assigned	Not started
6	Conformance Test	Not Assigned	Not Assigned	Not started
7	Interoperability Tests	Not Assigned	Not Assigned	Not started
8	End Point Behaviors (EPB)	Not a Standard	Not Assigned	Not started
9	Packet Data ISSI RCAT			
<b>D Trunked Console ISSI (Trunked CSSI)</b>				
1	Overview (See item F Conv ISSI below)	TSB-102.BAGA	Motorola	See Item F Conv ISSI below
2	Messages and Procedures	TIA-102.BACA-A	Nortel/EADS/MACOM/Motorola	Published 01/09
3	Measurement Methods Addendum	TIA-102.CACA-1	Motorola	Published Dec 2008
4	Performance Recommendations Addendum	TIA-102.CACB-1	Motorola	Published Dec 2008
5	Conformance Test Addendum	Not Assigned	Motorola	Jerry started July 2008
6	Interoperability Tests Addendum	Not Assigned	Motorola	Not started
7	End Point Behaviors (EPB)	Not a Standard	Not Assigned	Not started
8	Trunking CSSI RCAT			

Source: Jerry Drobka, v1.25  
TIA TR8.19 Committee Chair  
As of June 5, 2009

# ISSI Progress in the Industry

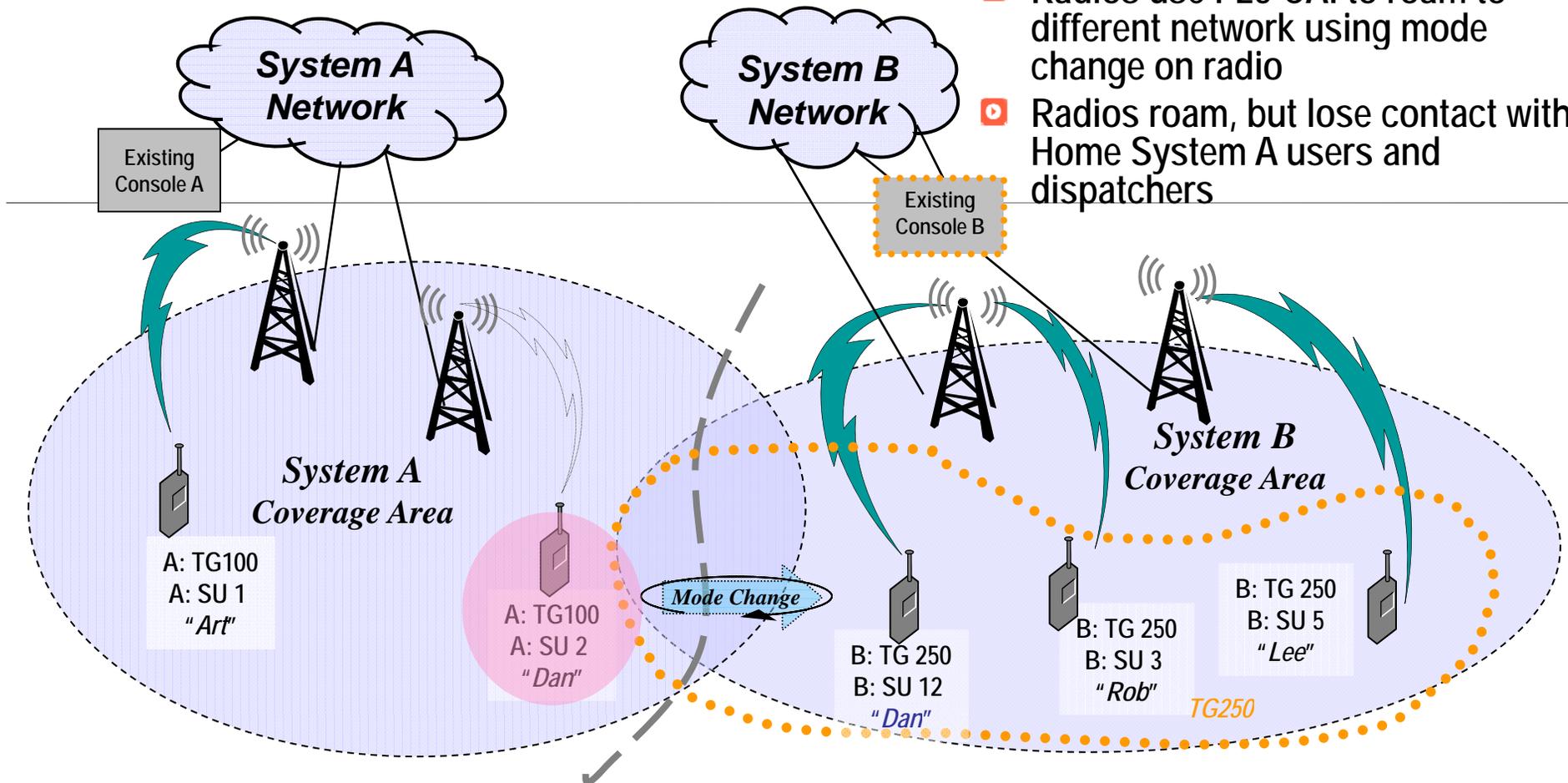


- ISSI.1 Network Gateway Application scheduled for release in 4Q09
- Motorola has had working ISSI.0 since March 2007
- (3) Multi-Vendor P25 ISSI Interoperability Demos held:
  - 2007 APCO (4 vendors)
  - 2008 IWCE (6 vendors)
  - APCO 2008 in Kansas City (5)
- (2) ISSI.0 Prototype Trials
  - State of Arizona (2008)
  - Texas Talks Trial (2009)
- Informational flash demo to educate on ISSI operation and use cases: [www.motorola.com/interoperability](http://www.motorola.com/interoperability)
  - 5 min overview, not a product promotional
- Confirmed 4 manufacturers will attend our ISSI Interop Event to test commercial ISSI gateways in January '10

# Unconnected Inter-System Roaming



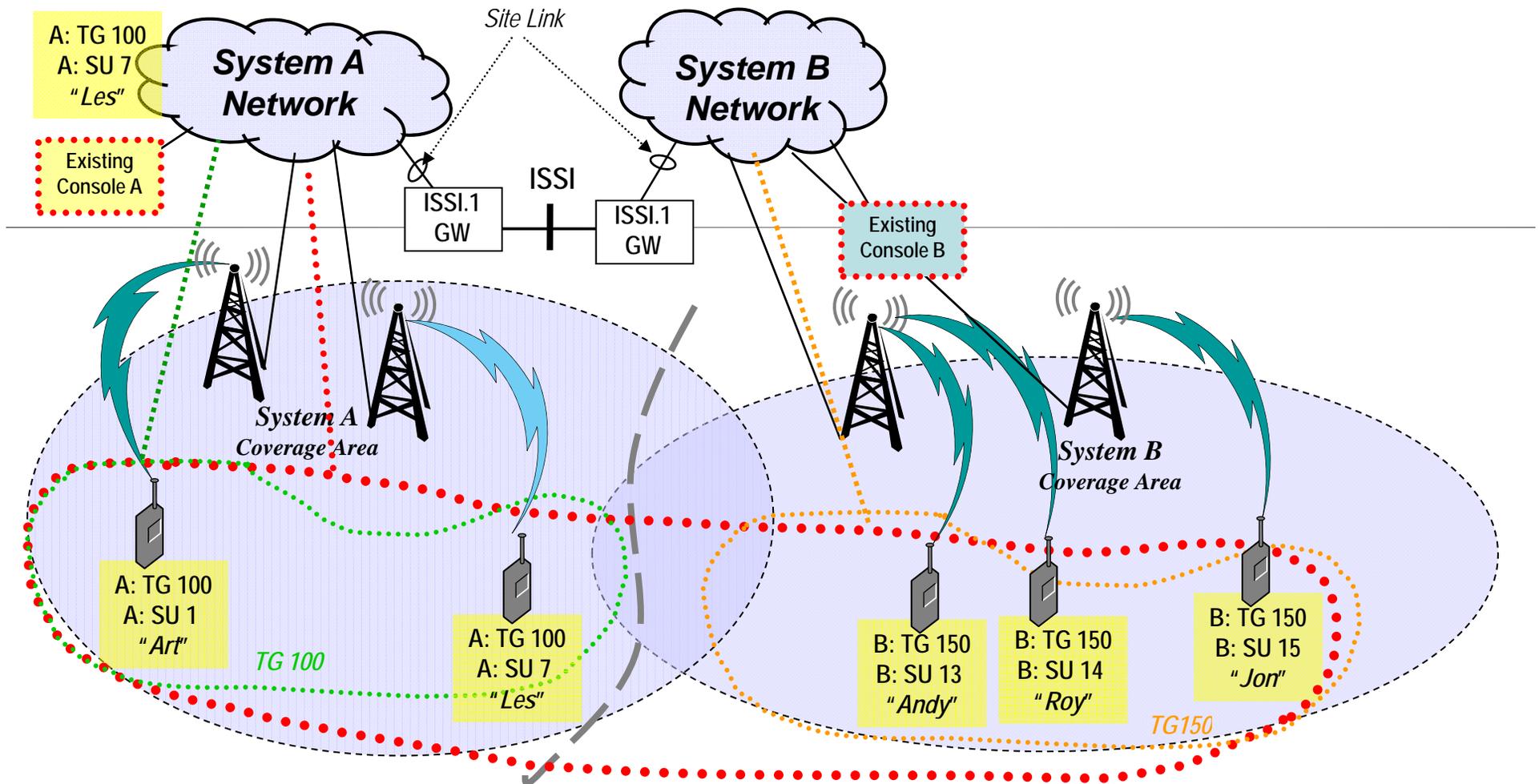
- ▶ Radio systems in the same RF band
  - ▶ unless APX multi-band
- ▶ Radios use P25 CAI to roam to different network using mode change on radio
- ▶ Radios roam, but lose contact with Home System A users and dispatchers



# ISSI.1 Network Gateway Solution



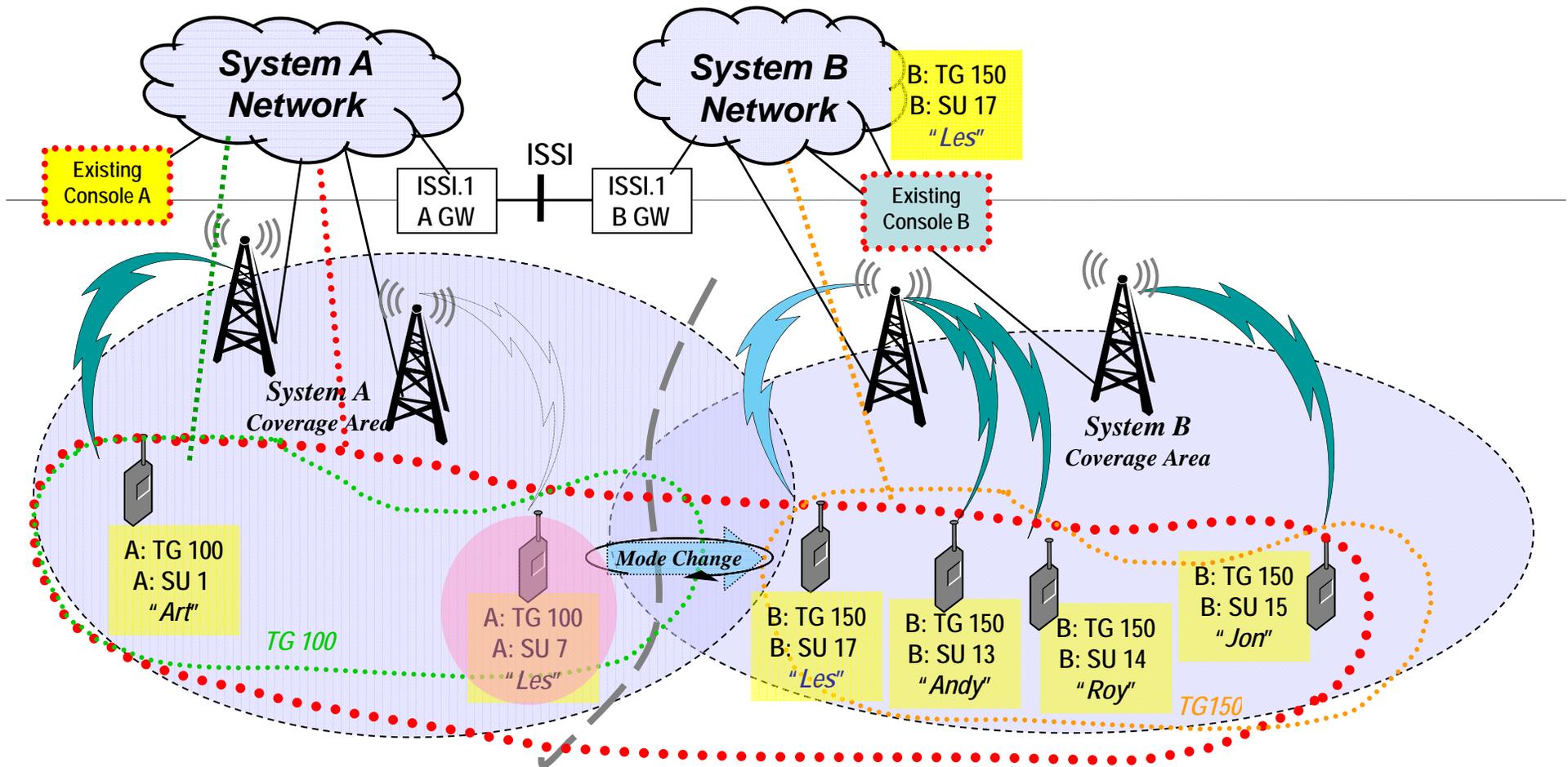
- Connects existing networks using existing P25 Subscribers



# ISSI.1 Manual Roaming



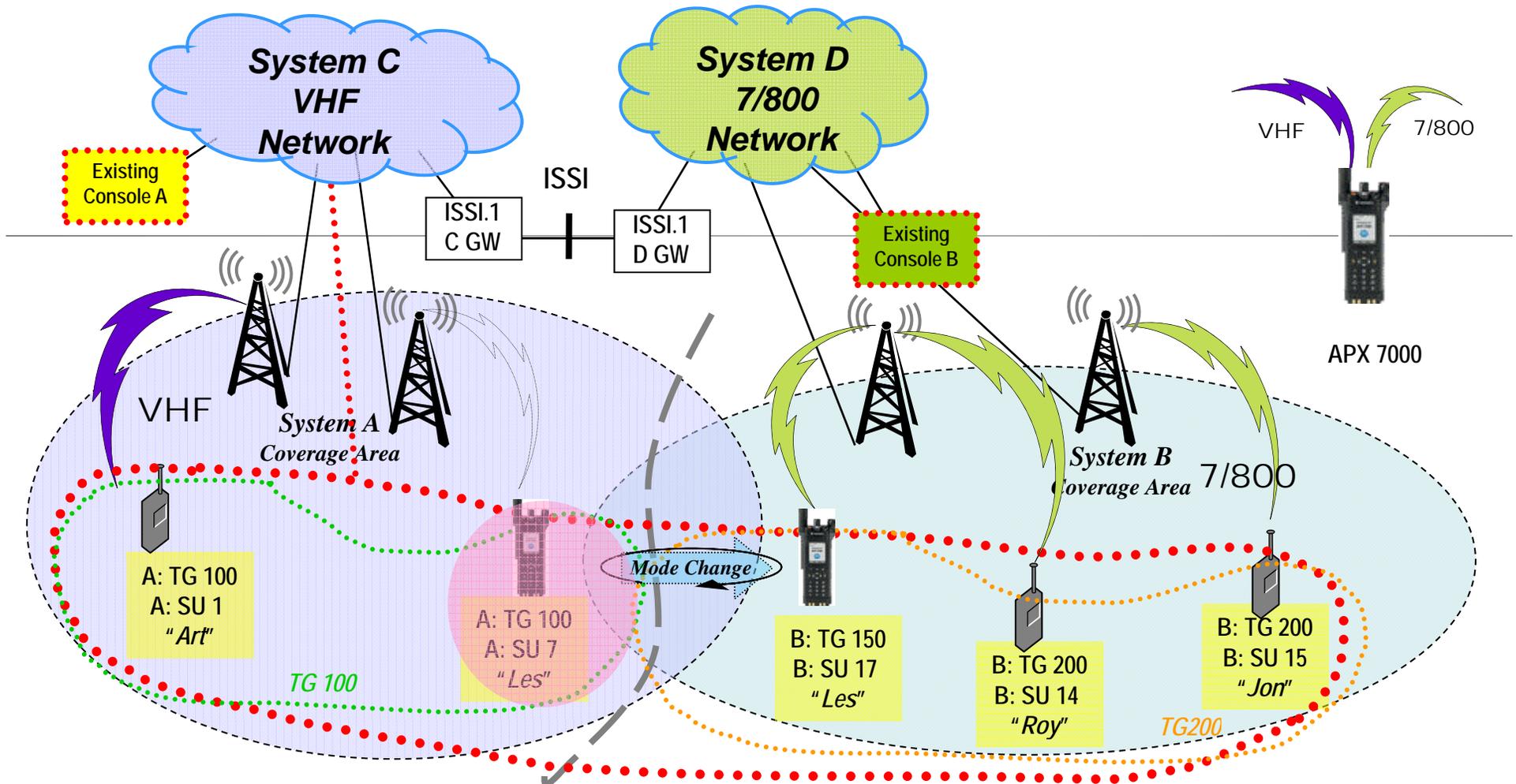
- Roaming radio user "Les" can roam from SysA to SysB by changing to SysB TG 150



# Inter-System Multi-band Roaming



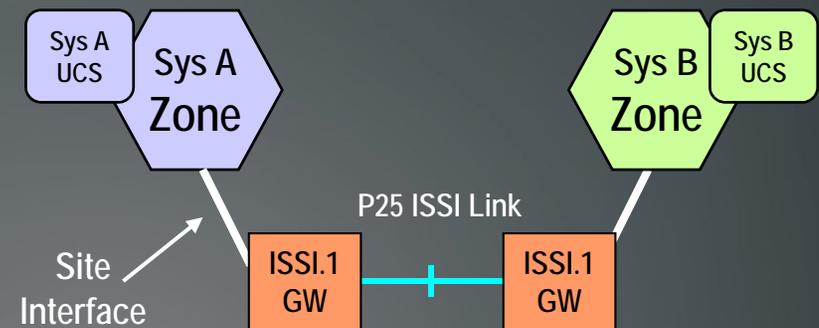
Powerful intersystem, multi-band roaming solution!



# ISSI.1 Network Gateway Overview



- ISSI.1 NGW Design enables connectivity while maintaining autonomy
  - Independent Fleetmap
- Enables trunked network connectivity between disparate networks....of different RF bands, System ID, manufacturer
- “Bolts on” to existing Systems
- Manual ISSI roaming for existing radios
- ISSI.1 NGW solution is secure
- Shipping in December of 2009



## ISSI.1 Network Gateway Features

- Connects to P25 ISSI compliant trunked P25 networks
- Adds-on to ASTRO 25 6.9/7.2+ networks
- No upgrade to zone, control channels or radios!
- Capacity Specifications
  - Max. number of simultaneous calls: 27
  - Max. number of configured Interop TalkGroups (iTGs): 60
- Services Supported:
  - Group Registration
  - ISSI Group Call
  - ISSI Emergency Group Call
  - Encrypted ISSI Group Call
  - Manual Inter-System Roaming



*Thank You!*

# P25 ISSI Compliance Assessment Program



- A P25 ISSI CAP implementation is being aggressively pursued.
- Motorola plans to have a NIST recognized ISSI Interoperability lab in 2H2010
- Informal multivendor tests are being scheduled for January 2010 to test commercially available ISSI gateways.