c-Bridge™

Communications Solutions

For

Enhancing **MOTOTRBO**™

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MOTOROLA
PROFESSIONAL RADIO
APPLICATION provider
MAKING SOLUTIONS WORK FOR YOU

What is c-Bridge™?

c-Bridge™ is a communications 'system' or 'platform', consisting of Controllers, Servers, Gateways, and Software that allows **MOTOTRBO**™ to be expanded beyond it's 'core' functionality.

c-Bridge™ systems can provide the following functionality….

- **Expand MOTOTRBO™ IP Site Connect Systems beyond 15 sites**
  - **Build VERY Large Systems – Virtually No Limit to Number of Repeaters**

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  - **All Call, Group Calls, and Private Calls**
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Site 1 Master	Site 2 Peer	Site 15 Master	Site 16 Peer
Site 3 Peer	Site 4 Peer	Site 17 Peer	Site 18 Peer
Site 5 Peer	Site 6 Peer	Site 19 Peer	Site 20 Peer
Site 7 Peer	Site 8 Peer	Site 21 Peer	Site 22 Peer
Site 9 Peer	Site 10 Peer	Site 23 Peer	Site 24 Peer
Site 11 Peer	Site 12 Peer	Site 25 Peer	Site 26 Peer
Site 13 Peer	Site 14 Peer	Site 27 Peer	Site 28 Peer

c-Bridge™ IPSC

Up to 5 IP Site Connect Systems, of up to 14 Repeaters in each system = 70 Repeaters!

c-Bridge™ systems can provide the following functionality….

- ■ Expand MOTOTRBO™ IP Site Connect Systems beyond 15 sites
- ■ **c-Bridge**™ systems handle voice and data calls
  - ■ Private Voice Calls
  - ■ GPS, Call Alert, Radio Query, Radio Enable/Disable, etc.
- ■ **Dynamically connect and disconnect between sites through PC-based Dispatch Software and/or ID Codes**

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Standard IP Site Connect System

Permanent IP Connection

C-Bridge System

C-Bridge Controller acts as a "switch"
Connect/Disconnect Systems

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- Dynamically connect and disconnect between sites through PC-based Dispatch Software and/or ID Codes
- **Interoperability with non-MOTOTRBO™ systems, including analog am, analog fm, and P25**
  - **Voice *ONLY* – no data capabilities when bridging to non-MOTOTRBO™ systems**

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Digital Repeater/System

Analog Repeater

Audio Connection

IP Connection

Audio Connection

P25 Control Station

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- **IP-based Remote Dispatch – no control stations or tone-control systems needed**

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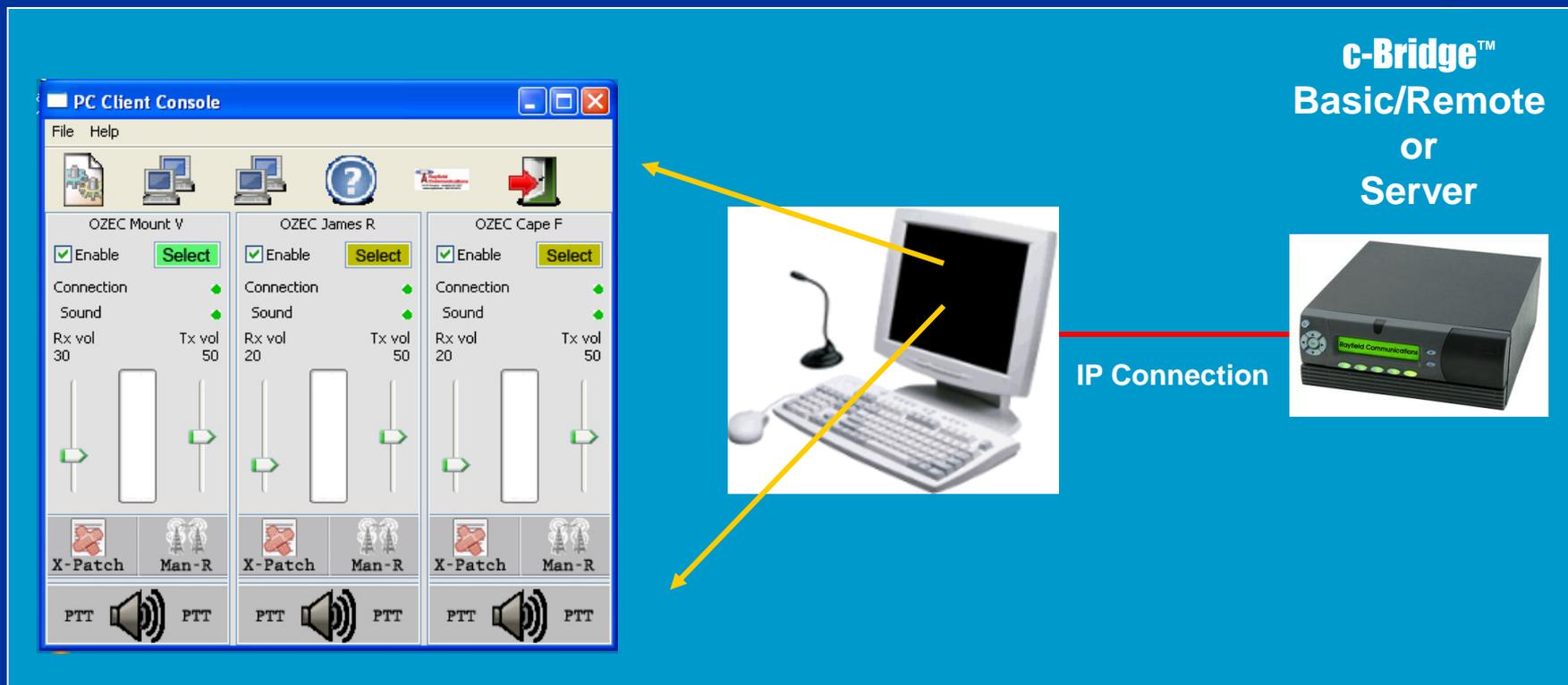
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- **Built-In Diagnostics for troubleshooting IP network problems and monitoring system operation**

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NetWatch Screen

Monitor System Activity

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CPU Load Level Screen
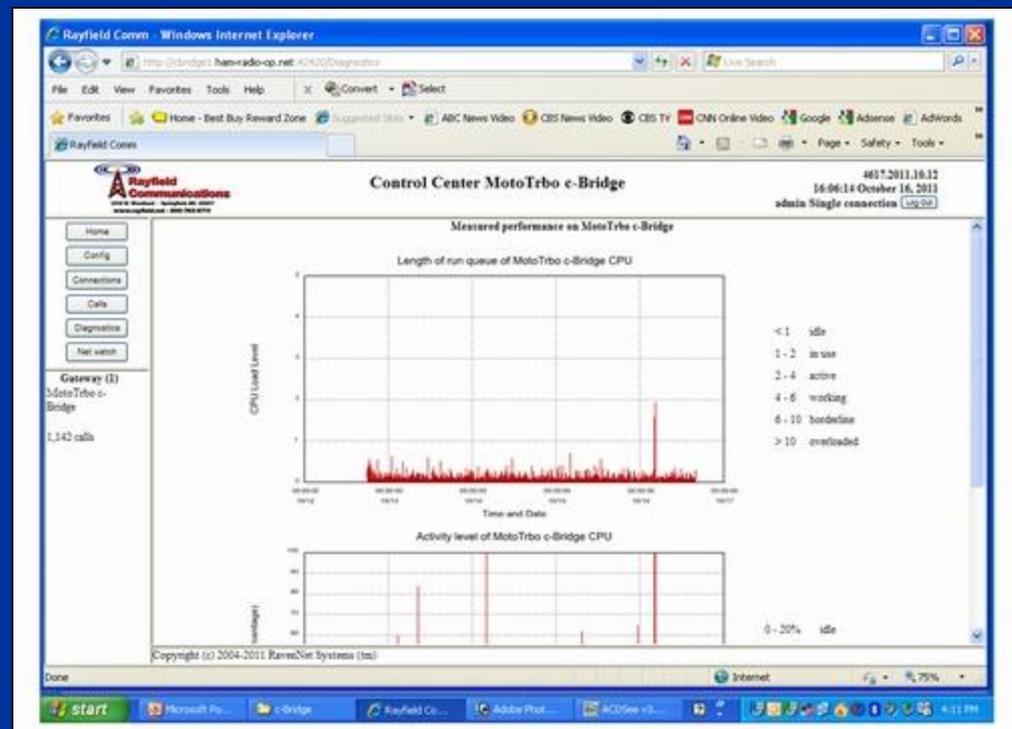
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  - Voice *ONLY* – no data capabilities when bridging to non-MOTOTRBO™ systems
- IP-based Remote Dispatch – no tone control systems needed
- Built-In Diagnostics for troubleshooting IP network problems and monitoring system operation
- **Can use just about any IP network connection including fiber, T1, wireless, DSL, and even some satellite links**
  - **c-Bridge™ systems can be designed that can use IP networks with long latencies and high jitter**

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A c-Bridge™ systems consists of either Controllers….

Self-Contained Server and Gateway

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A c-Bridge™ systems consists of either Controllers….

Self-Contained Server and Gateway

or separate Servers and Gateways

Servers and Gateways – Allow for more Connections to larger systems and more flexibility in setting up systems

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  - **A "Bridge Group" is created and any MOTOTRBO™ system and ID Code that is included in this "Bridge Group" will be 'bridged' together**

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  - This "Mapping" can be based upon Group ID's or the All Call ID
  - A "Bridge Group" is created and any MOTOTRBO™ system and ID Code that is included in this "Bridge Group" will be 'bridged' together
  - An unlimited number of Bridge Groups can be created with an unlimited number of MOTOTRBO™ systems and ID Codes added

How does the **c-Bridge**™ technology work with MOTOTRBO™?

c-Bridge™ **Mapping**

Site/Repeater Connections

Site/Repeater	Link ID	Active
Site 1, Time Slot 1 Schaumburg	1	X
Site 1, Time Slot 2	2	
Site 2, Time Slot 1 Omaha	3	X
Site 2, Time Slot 2	4	
Site 3, Time Slot 1 New York	5	X
Site 3, Time Slot 2	6	

How does the **c-Bridge**™ technology work with MOTOTRBO™?

c-Bridge™ Mapping

Bridge Group Programming

Bridge Group	Site/Gateway	Link ID	Group ID
W0PM	c-Bridge SPD	1	1
W0PM	c-Bridge SPD	3	1
W0PM	c-Bridge SPD	5	14

c-Bridge™ IPSC

Up to 5 IP Site Connect Systems, of up to 14 Repeaters in each system

IP Connection

IP Connection

IP Connection

Site 3
New York
Group ID 14

Site 1
Schaumburg
Group ID 1

Site 2
Omaha
Group ID 1
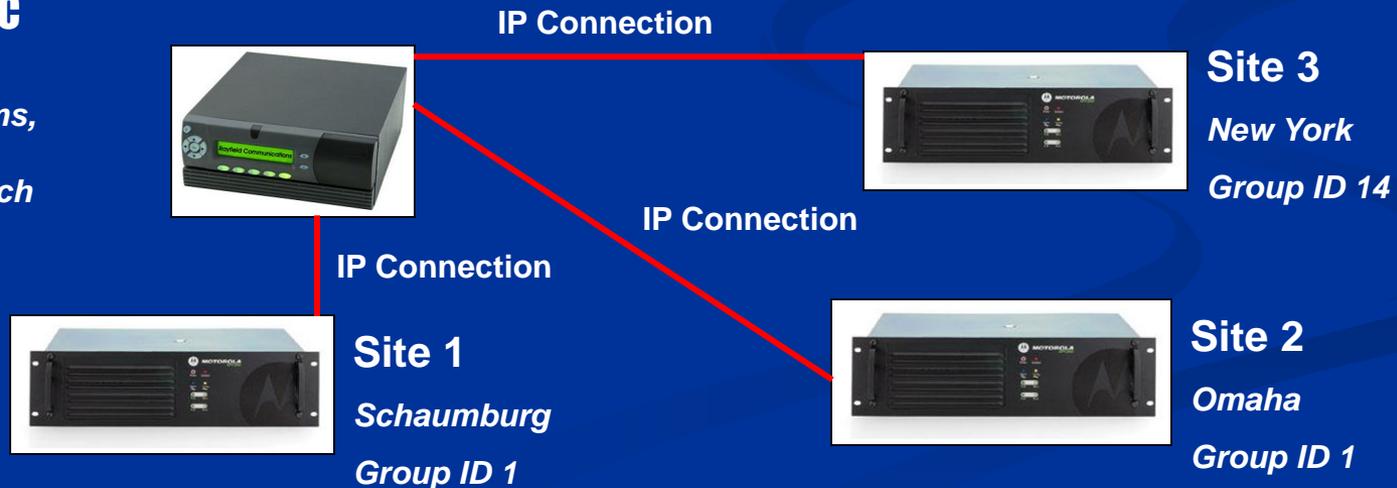
Examples of **c-Bridge**™ systems
Basic MOTOTRBO™/Analog Interoperability

IP Connection

c-Bridge™ **Basic/Remote**

Site 1 – Master

Center of County

Analog Connection

Site 2 - Peer

N. County

Analog Repeater

For Interoperability

Site 3 - Peer

S. County
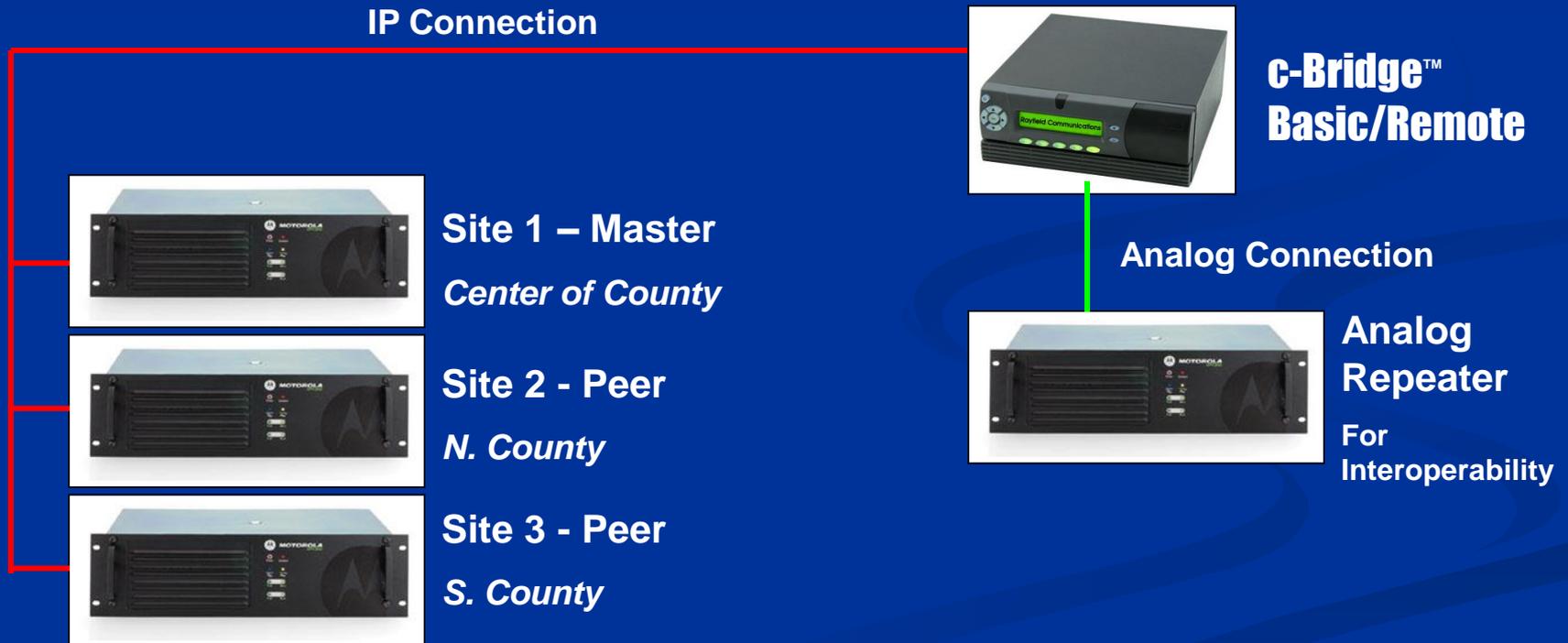
Examples of **c-Bridge**™ systems
DMR-MARC Network

c-Bridge™ IPSC

Up to 5 IP Site Connect Systems, of up to 14 Repeaters in each system

IP Connections

Site 1 - Master
Schaumburg, IL

Site 2 - Peer
Las Angeles, CA

Site 3 - Peer
Mesa, AZ

Site 4 - Peer
Kansas City, MO

Site 1 - Master
Queens, NY

Site 2 - Peer
Plantation, FL

Site 1 - Master
Germany

Site 2 - Peer
South Africa
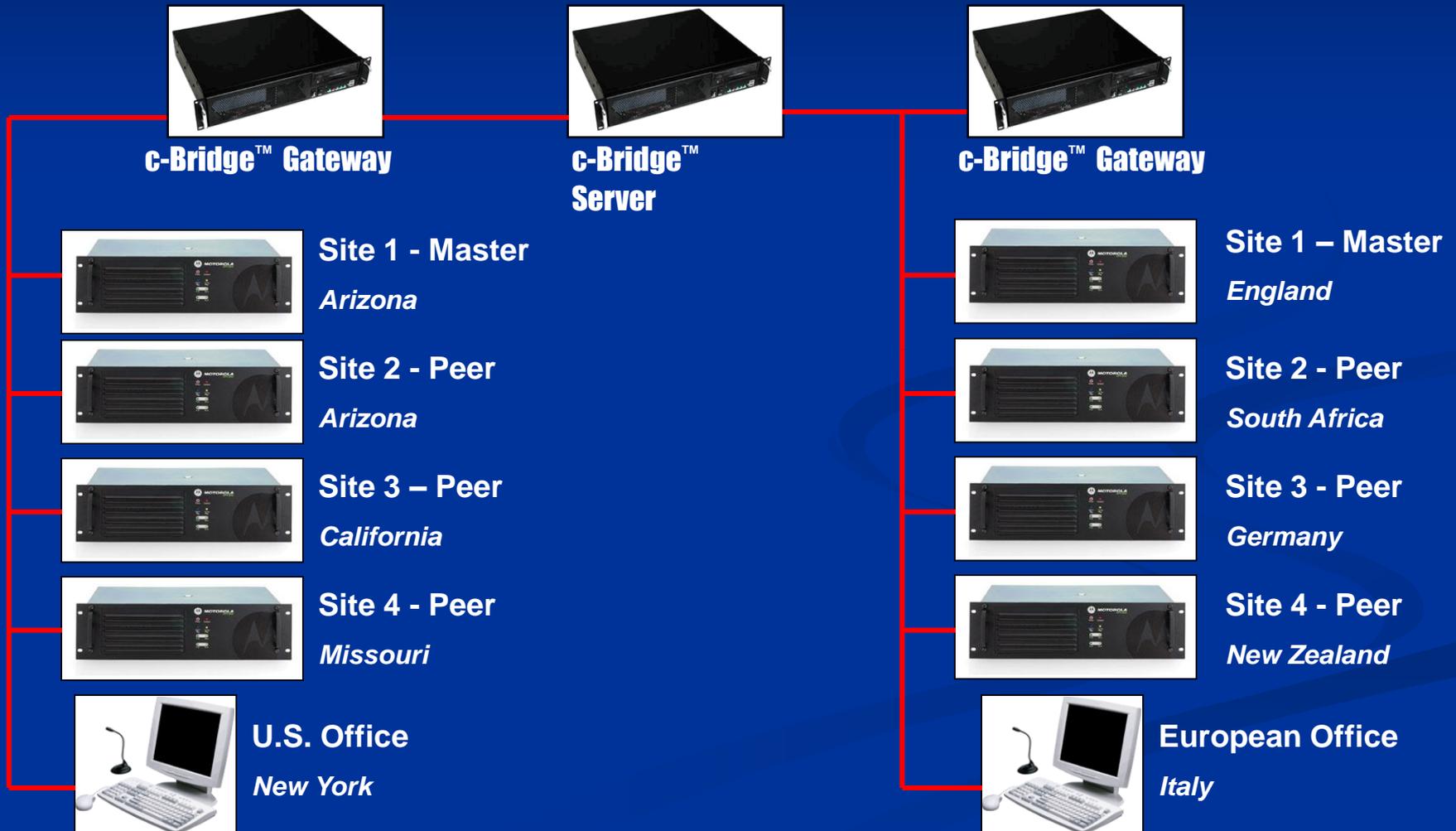
The **c-Bridge**™ 'system' provides a very flexible platform that can be taylored in numerous ways to meet the needs of the user.

1. **Expand IP Site Connect Systems – Build VERY Large IPSC Systems.**

2. **Interoperability between MOTOTRBO and non-MOTOTRBO Systems**

3. **IP/PC-based Remote Dispatch**

4. **IP Network and MOTOTRBO System Diagnostics and Troubleshooting Tool**

Questions?