Network Disclosure Announcement #407

Public Notice of Network Change(s), pursuant to CFR 47, subsections 51.325 - 51.335.
Qwest Communications Internet address: http://www.qwest.com/disclosures.

Wireless Carrier Interconnection to the E911 Emergency Services Network UPDATE 3/3/98

Original Disclosure Date: October 23, 1996

Revision to Network Disclosure News #407

The purpose of this disclosure is to announce additional capability to the wireless E911
network. U S WEST announces support of a Signaling System 7 (SS7) solution for delivery of E911 information to PSAP's from Wireless carriers. The SS7 solution is in additional to the currently available feature group D solution. The SS7 solution will greatly enhance the delivery speed of the information to the PSAP's. Due to the additional interfaces, this disclosure completely replaces disclosure #407.

Summary:

Phase One of FCC Docket 94-102 mandates that wireless carriers must forward a pseudo Automatic Number Identification (ANI) and the ten digit calling party number (MIN) to the correct Public Service Answering Point (PSAP) when their customer mades a 911 call. Compliance with Phase One of this Docket is required by April of 1998.

U S WEST Communications, Inc. (USWC) previously announced, via Network Disclosure Announcement #316, dated October 23, 1996, compliance with the Docket by providing direct wireless carrier interconnection to the E911 Emergency Services Networks. The announcement further stated that the interconnecting trunks would employ the end office to interexchange carrier format of the Feature Group D (FG D) signaling protocol. It has come to USWC's attention that certain wireless carriers may not currently have that signaling protocol format capability.

Therefore, U S WEST Communications (USWC) intends to also make available to wireless carriers interconnection using the end office to interexchange carrier via the access tandem format of FG D signaling protocol capability.

These interconnecting trunks will allow the wireless carrier to send both a seven digit or ten digit pseudo Automatic Number Identification (ANI) as the routing number and the full ten digit number of the calling unit. These numbers will enable USWC to route the call to the appropriate PSAP, and the PSAP to call the initiating subscriber back in the event of an inadvertent disconnect.

As previously announced, the employment of FG D signaling protocol for wireless carrier interconnection to the E911 network is a new use for the signaling protocol. This arrangement is not detailed in any technical document covering E911 interconnection and may impact wireless service provider's equipment. This announcement serves as notification of this new method of interconnection.

SS7 SOLUTION

U S WEST also intends to make available to wireless carriers an interconnection to the E911 Emergency Services Network based on ANSI/TIA/EIA-41 Cellular Radiotelecommunications Intersystem Operations (formerly IS-41 Rev. C) Mobility Application Part (MAP) protocol encapsulated in Transaction Capabilities Application Part

(TCAP) messages over a Common Channel Signaling System 7 (CCS/SS7) network interconnection. The Signaling Systerm 7 (SS7) signaling protocol requires TCAP transport and specialized message sets to communicate with a Wireless 911 Service Control Point (SCP) to determine routing digits and provide the Automatic Location Identification (ALI) database with the Call-Back number of the wireless caller, to adhere to Phase I requirements of FCC Docket No. 94-102.

The specialized TCAP message sets will enable Wireless Service Providers (WSP's) that support ANSI/TIA/EIA-41 capabilities to utilize MAP and TCAP protocols over SS7 A or D links to interface with U S WEST Signaling Transfer Points (STP's) for handoff to the U S WEST provided 911 SCP. To initiate the SS7 based messages into the U S WEST Signaling Network, a WSP's Mobile Switching Center (MSC) will connect to the US WEST Local STP via SS7 links. The interface requirements are provided below under the heading "Interface Specifications."

The WSP's MSC will send an ANSI/TIA/EIA-41 based TCAP message to the U S WEST Local STP, which will in turn be routed to the 911 SCP. This query message will take the form of an OriginationRequest (9-1-1) Invoke and the associated response message will be an OriginationRequest (9-1-1) Return Result. The message set details are listed later in this document under the heading "Message Format".

Locations and Timing of Deployment:

The following represents a revised deployment schedule. This information is subject to change.

U S WEST's Local STP Locations

State		Pair / LATA		Location Name
ARIZONA		Phoenix		Deer Valley
				Mesa
ARIZONA		Tucson		Tucson Main
				Tucson East
COLORADO		Colorado Springs		Colorado Springs Main
				Pueblo Main
COLORADO		Denver		Dry Creek
				Denver Main
IDAHO		Idaho		Boise
				Pocatello
IOWA		Cedar Rapids		Cedar Rapids Downtown
				Waterloo Downtown
IOWA		Davenport		Davenport Downtown
				Davenport East
IOWA		Des Moines		Des Moines

			Mason City
IOWA		Sioux City	Sioux City Downtown
			Spencer
MINNESOTA		Duluth	Duluth Melrose
			Virginia
MINNESOTA		Minneapolis	Beard
			St. Paul
MINNESOTA		Rochester	Owatonna
			Windom
MONTANA		Billings	Billings
			Bozeman
MONTANA		Great Falls	Helena
			Missoula
NEBRASKA		Omaha	Douglas
			"O" Street
NEW MEXICO		New Mexico	Albuquerque East
			Albuquerque Main
NORTH DAKOTA		Brainerd / Fargo	Fargo
			Grand Forks
OREGON		Portland	Belmont
			Capital
OREGON		Eugene	Eugene
			Medford
SOUTH DAKOTA		South Dakota	Rapid City
			Sioux Falls

UTAH	Utah	Kearns
		Provo
WASHINGTON	Seattle	Seattle Main
		Seattle East
WASHINGTON	Spokane	Spokane Riverside
		Yakima Chestnut
WYOMING	Wyoming	Cheyenne
		Casper

Pricing:

Individual case basis.

Interface Specifications:

Entities that are interconnecting to the U S WEST SS7 network can do so through the Local Signaling Transfer Points (LSTPs). The interconnection arrangements can be done through A-links or D-links based upon the arrangement that the Interconnecting Network (ICN) is capable of supporting. STP gateway screening tables will be individually translated for each link set by the appropriate U S WEST personnel to permit the Request message sets to enter the U S WEST Network.

ICN STP to U S WEST STP

The ICN mated STP pair is interconnected to the U S WEST mated STP pair by way of quad"D" (Diagonal) links. Three physically diverse link facility routes are strongly recommended. U S WEST will effectuate and maintain link diversity from the geographically separated U S WEST Communications Inc. Signaling Transfer Point to the ICN Signaling Point of Interface (SPOI) per a joint agreement.

ICN MSC to U S WEST STP

The ICN MSC is interconnected to the U S WEST mated STP pair by way of dual "A" (Access) links. U S WEST will effectuate and maintain link diversity from the geographically separated U S WEST Communications Inc. Signaling Transfer Point to the ICN Signaling Point of Interface (SPOI) per a joint agreement.

Link Transport Architecture

Link Architecture: Each CCS signaling link must provide digital bi-directional transmission. Each full duplex signaling link shall operate at the 56 kbit/s data rate and occupy a single DS0 (64 kbit/s) channel of a 24 channel DS1 digital transmission system. The DS0-A channels (links) are multiplexed into a DS1 format for hand off at the Network Interface (NI); the point of interconnect between the U S WEST Communications, Inc. Network and the ICN. Facility Architecture: A synchronized DS1 (1.544 Mbit/s rate) terrestrial digital facility is required. The facility must be channelized, and comply with the requirements given in Bellcore Technical Reference GR-342-CORE, "High-Capacity Digital Special Access Service -Transmission Parameter Limits and Interface Combinations."

Additional Notes:
- The DS1 facility does not require Clear Channel Capability (CCC) and may have robbed-bit signaling.
- DS1 Extended Superframe (ESF) format is strongly recommended.
- DS1 Superframe (SF) may be used, but is not recommended.

Message Format

The following section will define the query and response messages that will be sent between WSPs MSC and the U S WEST Local STP. There are two scenarios for the message format based on the type of interconnection the WSP choose to utilize, either A or D links. For the query messages (MSC to U S WEST Local STP), it is expected that these messages will be distributed across a linkset for load balancing purposes.

OriginationRequest (9-1-1) Invoke - "A" link interconnection

MTP layer							
DPC							
OPC							
SLS							
Message Type=UDT							
0	0	0	0	0	0	0	0
Pointer to Called Party Address Field							
Pointer to Calling Party Address Field							
Pointer to TCAP data							
LI of CdPA field							
1	0	0	0	1	0	0	1
Called Party Address Field SSN = 0 TT = *250 (MIN to 911 SCP) GTA Digits = MIN							
LI of CgPA Field							
1	1	0	0	0	0	1	1
Calling Party Address Field SSN = SSN for MSC 911 Application Point Code of MSC							
Length Indicator of TCAP Data Field							
TCAP Data Field (see TCAP query content)							

*Note - Interim assignment until National Translation Type is assigned

OriginationRequest (9-1-1) Invoke - "D" link interconnection

MTP layer							
DPC							
OPC							
SLS							
Message Type= UDT							
0	0	0	0	0	0	0	0

Pointer to Called Party Address Field							
Pointer to Calling Party Address Field							
Pointer to TCAP Data Field							
LI of CdPA field							
1	0	0	0	1	0	0	1
Called Party Address Field							
SSN = 0							
TT = *250 (MIN to 911 SCP)							
GTA Digits = MIN							
LI of CgPA Field							
1	1	0	0	0	0	1	1
Calling Party Address Field							
SSN = SSN for MSC 911 Application							
Point Code of MSC							
Length Indicator of TCAP Data Field							
TCAP Data Field							
(see TCAP query content)							

*Note - Interim assignment until National Translation Type is assigned

TCAP Data Field - OriginationRequest (9-1-1) Invoke

OriginationRequest (Invoke) Parameters	
TCAP Package Type:	**Query with Permission**
Transaction ID	
Component Sequence	
Component Type:	**Invoke (last)**
Component ID	
Operation Code:	**National TCAP**
Parameter Set	
BillingID (originating)	
Digits (dialed)	
ElectronicSerialNumber	
MobileIdentificationNumber	

MSCID (originating MSC)	
OriginationTriggers	
TransactionCapability	
LocationAreaID	

OriginationRequest (9-1-1) Return Result

MTP layer
DPC
OPC
SLS
Message Type= UDT

0	0	0	0	0	0	0	0

Pointer to Called Party Address Field
Pointer to Calling Party Address Field
Pointer to TCAP Data Field
LI of CdPA field
Address Indicator
Called Party Address Field
SSN = SSN for MSC 911 Application
LI of CgPA Field
Address Indicator
Calling Party Address Field
SSN = SSN for 911 SCP
Length Indicator of TCAP Data Field
TCAP Data Field
(see TCAP query content)

TCAP Data Field - OriginationRequest (9-1-1) Return Result

OriginationRequest (Return Result) Parameters	
TCAP Package Type:	**Response**
Transaction ID	
Component Sequence	
Component Type:	**Return Result**

	(last)
Component ID	
Parameter Set	
Digits (Routing)	

Technical Reference:

The following document contains information regarding the characteristics of the signaling protocol and format requirements for FG D:

Bellcore documents:

SR-TSV-002275, Bell Operating Company (BOC) Notes on the Local Exchange Carrier (LEC) Networks, Section 6.15.5.4, Issue 2, April of 1994 Price: $435.00 The following document contains information regarding the characteristics of the signaling protocol and format requirements for the SS7 solution:

Bellcore documents:

GR-342-CORE, "High-Capacity Digital Special Access Service -Transmission Parameter Limits and Interface Combinations." Issue 1, December 1995 Price: $200.00

U S WEST's Technical Publications:

#77200 - "DS1 Service and Synchronization Service" Price $45.00

#77375 - "1.544 Mbit/s Channel Interface Technical Specifications for Network Channel Interface Codes Describing Electrical Interfaces at Customer Premises and at U S WEST Communications, Inc. Central Offices" Price $62.50

ANSI documents:
Information relative to the Mobility Application Part (MAP) protocol is contained in "ANSI/TIA/EIA-41 Cellular Radiotelecommunications Intersystem Operations (formerly IS-41 Rev. C)" Price - Free

Bellcore publications can be obtained by contacting:

Bellcore Customer Relations
8 Corporate Place, Room 3A-184
Piscataway, NJ 08854-4196
Fax: (908) 336-2559
Phone: (800) 521-CORE (2673) (U.S. and Canada)
Phone: (908) 699-5800 (Others) 77200 77375

U S WEST publications can be obtained by contacting:

Faison Office Products Company 3251 Revere Street, Suite 200 Aurora, CO 80011 or call (800) 777-3672 FAX Number (303) 340-1905

ANSI Publications can be obtained by contacting:

Telecommunications Industry Association / Electronics Industry Association(TIA/EIA) 2500 Wilson Blvd., Suite 300 Arlington, VA 22201 Phone: (703) 907-7700

Additional Information Contact:

Additional questions regarding the direct wireless carrier interconnection to the E911 Emergency Services Network using FGD signaling can be directed to:

Mr. Gerry Coe
Technical Industry Issues Management
U S WEST Communications
700 W. Mineral, Room MN D20.12
Littleton, CO 80120
or call: 1-303-707-7002
FAX: 1-303-707-9578

Additional questions regarding the direct wireless carrier interconnection to the E911 Emergency Services Network using utilizing the SS7 network can be directed to:

Mr. Jim Carroll
911 Product Manager
New Product Development
200 S. 5th St 18th Floor
Minneapolis, MN
Telephone : 612 663-4231

NOTE: This announcement has been released in accordance with the FCC Rule 51.333(a), Certification of Short Term Public Notice.