

Total Telecom Auditing

Tips, Tools & Techniques to Cut Your Wireline and Wireless Spending

November 13-14, 2006 • Dallas, TX • The Adolphus Hotel

Circuit Audits & Optimization: Keys to Big Ticket Success

Jose Alarcon

Managing Partner

Intelligent Bills



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What Will Be Covered

- **USOCs**
- **Customer Service Records**
- **Channel Termination & Channel Mileage**
- **Circuit Designs**
- **Vendor Tariffs**

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USOC: Uniform Service Order Code

They define various network components, interfaces, products and/or services.

They allow you to request products/services from the service providers in the most efficient manner.

They are used to clearly identify each billable service, to automate billing and provisioning.

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USOC's Today

- All Vendors use a variation of the code today
- Most SPs present their pricing to State and Federal Commissioning bodies in the form of Tariffs
- The Major Service Providers publish their Tariffs on their Web Sites.
- For Unregulated Services, the SP may sometimes publish their USOCs in their Service Guides

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Variation of the Code

A T1 is a T1 is a T1 but each vendor bills it differently.

- Every Service Provider has different definitions for their billing elements.**
- They bill mileage and terminations differently although there are standards used in the industry to determine this.**
- They apply discounts to services differently via USOCs**

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Sample USOC's

- **TMECS – Channel Termination M2M**
- **TNT3x – Channel Termination with 3 Yr Term**
- **TNT5X – Channel Termination with 5 Yr Term**
- **1FB – Flat Rated Business Line**
- **1MB – Measured Rated Business Line**
- **1YENS – Interoffice Mileage for T1 Circuits (M2M, 3 Yr & 5 Yr Terms)**
- **1YEFS – Interoffice Mileage for Ring Down Circuits (M2M, 3Yr & 5 Yr Terms)**

Note that some of these Codes are used for both CRIS and CABS Billing. On CABS Billing, the same USOC is used for different types of term pricing across the board whereas, with CRIS Billing, they differentiate this, sometimes. Your Vendor can provide you with a USOC Listing they use along with their description.

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Governing Bodies

- **Public Utilities Commission (State)**
- **Public Service Commission (State)**
- **Federal Communication Commission (Federal)**
- **Clients (Universal)**

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Publishing

- **USOCs can be found in the SPs tariff of which most of them publish on their own website**
- **Additional information can be found in their service guides or through their web portals**
- **Each Vendor Account Team can provide you with their USOC listing and description**
- **CCMI's Telview Service is also a great source of information for Rate & Tariff Documents**

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Ordering Services

The Human Component. . .

- USOCs are used to price out services by the SP's representative.
- USOCs are used in determining contracted rates by the SP's representative.
- USOCs are manually data entered into the billing system to generate a bill for the service you subscribed too.

Training, Understanding, & Application
play huge roles with USOCs

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Same Differences. . .

The next slide will illustrate two providers billing Channel Terminations very differently but using USOCs to determine pricing and application

- **CABS vs CRIS**
- **Term vs No Term**
- **Channel Terminations**

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THE VERIZON TELEPHONE COMPANIES

TARIFF F.C.C. NO. 11
4th Revised Page 31-122
Cancels 3rd Revised Page 31-122

ACCESS SERVICE

31. The Verizon Telephone Companies Rates and Charges (Cont'd)

31.7 Special Access Service (Cont'd)

31.7.9 High Capacity Service

(A) Channel Terminations

- (1) Standard Channel Termination
Per Point of Termination:

(a) 1.544 Mbps

	USOC	Monthly Rates	Nonrecurring Charge	
			First	Add'l
Massachusetts				
Pricing Zone 1	TMECS#	\$197.00 (R)	\$275.00	\$165.00
Pricing Zone 2	TMECS#	218.16 (R)	275.00	165.00
Pricing Zone 3	TMECS#	231.49 (R)	275.00	165.00
New York/Connecticut				
Pricing Zone 1	TMECS#	177.12	275.00	165.00
Pricing Zone 2	TMECS#	218.16 (R)	275.00	165.00
Pricing Zone 3	TMECS#	231.49 (R)	275.00	165.00
Maine, New Hampshire, Rhode Island, Vermont				
	TMECS#	231.49 (R)	275.00	165.00
<u>Nonrecurring Charge</u>				
Non-Standard Premises (NSP) Connection - All States				
- Per customer, Per NSP, First Service Only	NRBWR		\$3,000.00	
(b) 3.152 Mbps*	TWT++	ICB	ICB	None

* Verizon New England Inc. only.

Substitute USOC TZGHX for USOC TMECS when the 1.544 Mbps Service is connected to NYNEX Enterprise Service, Enterprise SONET Service or provides access to Frame Relay Service.

ICB rates and charges are filed in 31.7.14 following.

(TR 327)

Issued: June 16, 2003

Effective: July 1, 2003

Vice President, Federal Regulatory
1300 I Street, NW, Washington, D.C. 20005

SBC California
San Francisco, California

SCHEDULE CAL.P.U.C. NO. 175-T
2nd Revised Sheet 330-D-1
Cancels 1st Revised Sheet 330-D-1

ACCESS SERVICE

7. Special Access Service (Cont'd)

7.5 Rates and Charges (Cont'd)

7.5.8 Digital Services (Cont'd)

(C) High Capacity Service

	USOC	Monthly Rates	Nonrecurring Charges	
			1st	Add'l.
CABS/CRIS				
(1) Channel Termination - Per point of termination				
(a) DS1 1.544 Mbps Service				
Month to Month - at an End User location				
	TMECS/TMECS	\$165.94	\$600.69	NA ¹
Month to Month - at an IC POT location				
	TMEPS/TMEPS	71.12	600.69	NA ¹
- 1 Year Term Plan at an End User location	TMECS/T6XG1	160.00	600.69	NA ¹
- 1 Year Term Plan at an IC POT location	TMEPS/T6XL1	71.12	600.69	NA ¹
- 2 Year Term Plan at an End User location	TMECS/T6XG2	155.00	None (R)	NA ¹
- 2 Year Term Plan at an IC POT location	TMEPS/T6XL2	71.12	600.69	NA ¹

NOTE 1: For DS1 1.544 Mbps service, the charge for each point of termination is the charge shown for the 1st charge.

Continued

Advice Letter No. 23528

Issued by

Date Filed: Jan. 31, 2003

Decision No.

Cynthia Wales

Effective: Mar. 12, 2003

Executive Director

Resolution No.

Verizon FCC Tariff Access Service No. 11

SBC PUC Tariff Access Service No. 175-T

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CSRs

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Customer Service Records

A record containing customer specific information on end user's account.

CSRs contain Listing, Billing & Service, and Equipment sections detailing the type of listing(s) for the account, as well as a breakdown of the lines and features.

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End User Account Info

Some examples of typical information that can be found on your CSR are:

- **Billing account number**
- **Contact Name**
- **Service Address**
- **Mailing Address**
- **Service Establishment Date**
- **Restrictions to the Account**

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Billing & Services

- **Information on Service Types, Quantities, Components, Features, and Mileage are all illustrated in your CSRs.**
- **Service establishment dates along with specific contracted service dates also appear.**

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Inventory Information

- **Circuit Identifier**
- **Service Type**
- **Originating and Terminating Addresses**
- **POI Point of Interface**
- **NPA-NXX Information for Channel Mileage**
- **CFA (Connecting Facility Assignment Information)**

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Sample CSR

Take aways from the Sample:

1. Circuits broken out my originating and terminating locations
2. Wealth of information given at each location such as Local Serving Office at each Point
3. USOCs illustrating what is and is not being billed at each end
4. Quantity of each USOC being billed along with its costs
5. Engineering information not readily available on the Web Portal, such as CFA information or Point of Interface

Oct 10 06 10:55a Jose Alarcon 925 905 3839 p.1
Account number
[REDACTED]
June 25, 2006

veri on
We never stop working for you.

Page 3

SVC ESTBL	QTY	CODE	DESCRIPTION	TAX	AMOUNT	ACTVTY DATE
042905		ASG 4501				042905
042905		CLS 95.HCGL	[REDACTED]			042905
		/ASG 4501				
		/NC HC--				
		/PIU 100				
042905	1	XZH1R				042905
042905		CKL 1-56	ROLAND, SOM, MA			042905
		/LOC	BLDG NEON POP			
		/SN	[REDACTED]			
		/LSO	617 666			
		/NCI	04D56.44			
		/HBAN	[REDACTED]			
		/CFA	4501 T3Z			
		/TAR	H900			
		/CBNA	00ENG			
		/LCDN	DUTY TECH, [REDACTED]			
		/POI	CHTMABFN01			
		/FLR	1			
		/RM	TELCO			
		/LSOC	SOVLMACEDSO			
042905		CKLT 2-SOVL	MACEK31			042905
042905		CKL 3-100	FEDERAL, BOS, MA			042905
		/LOC	[REDACTED]			
		/SN	[REDACTED]			
		/LSO	617 434			
		/NCI	04DU9.B			
		/TAR	H900			
		/LCDN	JOHN [REDACTED]			
		6				
		/XPOI	BSTNMAAKN67			
		/ZCAC	SRD2HF9			
		/RM	TELCO			
		/LSOC	BSTNMAFRD50			
042905	1	LIS&S				042905
042905	1	TMECS	/ZONE 1			042905
		INTER MA - EC	5112 100.00 % X	1	2	
		X	197.00			197.00
042905	1	UA7HF				042905
042905	4	L5XX	/PBD 6			042905
		INTER MA - EC	5112 100.00 %		2	
		(55.00+ (27.37 X 4))			
020706	24	S25EX				040706
			INTERSTATE SUBTOTAL MA 5112			361.48
			CIRCUIT SUBTOTAL			
			MA 5112			361.48

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Samples

SVC ESTBL	QTY	CODE	DESCRIPTION	TAX	AMOUNT	ACTVTY DATE
052605		CLS	95.HCGL.15 [REDACTED] NE			
			/ASG 4501			
			/NC HC--			
			/PIU 100			
052605	1	XZH1R			052605	
052605		CKL	1-56 ROLAND, SOM, MA			
			/LOC BLDG NEON POP			
			/SN [REDACTED]			
			/LSO 617 666			
---SERVICE AND FEATURES---						
			/NCI 04DS6.44			
			/HBAN [REDACTED]			
			/CFA 4501 T3Z [REDACTED]			
			/TAR H900			
			/CBNA 00ENG			
			/LCON [REDACTED]			
			/POI CHTMMABFW01			
			/FLR 1			
			/RM TELCD			
			/LSOC SDVLMACEDSO			
052605		CKLT	2-SOVLMAKEK31		052605	
052605		CKL	3-225 FRANKLIN, BOS, MA		052605	
			/LOC [REDACTED]			
			/SN [REDACTED]			
			/LSO 617 926			
			/NCI 04DU9.B			
			/TAR H900			
			/LCON [REDACTED]			
			759			
			/XPOI BSTAMAFKN87			
			/ZCAC SRH2PR3			
			/LSOC BSTNMAHADS9			
052605	24	S25			052605	
			INTER MA - EC 5112 100.00 % X 24			
			y 25.00		600.00	
052605	1	TNECS	/ZONE 1		052605	
			INTER MA - EC 5112 100.00 % X 1			
			x 197.00		197.00	
052605	4	1L5XX	/PBD 6		052605	
			INTER MA - EC 5112 100.00 %			
			(55.00+ (27.37 X 4)		164.48	
			INTERSTATE SUBTOTAL MA 5112		961.48	
			CIRCUIT SUBTOTAL			
			MA 5112		961.48	

CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
303	JUL 19 06 *CSR LIVE P 1 5		
	PSO 1		
XSBN K 303	/CS XDH3X/SIC 05999-135		
	EAC A		
	BOC 72E		
---	CTL DNVRCOBWA01		
---	BILL XXXBL1WXXX		
	MCN [REDACTED]		
	SS [REDACTED]		
	CBR [REDACTED]		
	BN1 [REDACTED]		
	BN2 [REDACTED]		
	BA1 [REDACTED]		
	PO [REDACTED] /TAR BF		
	[REDACTED] /TAX C L L Y		
	GRP K 303 [REDACTED]		
	CRV [REDACTED]		
	TACC QADV. 183192		
	BAPC 19A		
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 2 5		
	PSO 1		
	---	S&E	
			ORIG SERV ESTAB 6-10-05
61005	1706	CLS 24.HFGS [REDACTED] .MS	.00 .00
		XDH3X/MTN	
		CHANNEL MILEAGE	
61005	1706	[REDACTED] /MTN/RAX QA	650.00 650.00 ?
		/DES 303 320-303 534	
61005	1706	[REDACTED] /MTN/RAX QF	85.00 340.00 ?
		/DES 303 320-303 534	
		CIRCUIT LOCATIONS	
		CKL 1 -4301 E COLFAX AVE.	
		DENVER, CO	
		/SN QWEST CO	
		/LCON COT. 303	
		000-0000	
		/CKLT 1-DNVRCOEA	
		/LSO 303 320	
RP	NOTATION	TYPE	PN ACT FU BD
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 3 5		
	PSO 1		
		/DES WACD XC	
		24.HFGS [REDACTED] .MS	10.00 10.00
61005	1706	PQSQS/MTN/DES COCC	.00 .00
61005	1706	CIG /MTN/NC HF-- /NCI 04DS6.44A	
		/DES DS3 HUB PORT	
		CKL 1 SUBTOTAL	10.00
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 4 5		
	PSO 1		
		CKL 2 -911 14TH, DENVER, CO	
		/SN QWEST CO	
		/CKLT 2-DNVRCOMA	
		/LSO 303 534	
		/LCON COT. 303	
		000-0000	
		/DES WACD XC	
		24.HFGS [REDACTED] .MS	10.00 10.00
61005	1706	PQSQS/MTN/DES COCC	
		CKL 2 SUBTOTAL	10.00
		---RMKS	
		RMKR	
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 5 5		
	PSO 1		
		NOS 0	
		TOTAL EXCLUDING TAX	1010.00

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CT & CM

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Channel Termination & Mileage

- **Channel – An electrical or photonic communication path between two or more points of termination.**
- **Based on this definition, the Service Providers charge End Users for each point of termination along with any associated mileage between two or more points.**
- **CT & CM can make up the largest percentage of cost for the circuit.**
- **Our Biggest Wins and Refunds have come from focusing on these areas.**

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Different Views On Channel Termination and Mileage by the Providers

- **Some Providers will not charge and/or charge you a lesser amount for a Channels Terminating at their Central Office.**
- **Some Providers won't charge you mileage if the Circuit Mileage is less than a Quarter Mile away, while others may**
- **Some organizations, bill mileage in Complete Full Mile increments while others bill a Fixed Cost plus a Variable multiplied by Quarter Miles.**
- **Most providers discount Channel Terminations and Mileage depending on term and number of circuits.**

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Determining CM

A Simple Formula used industry wide will allow you to validate your mileage charges for all your circuits.

Formula: Square Root of $(V1-V2)^2 + (H1-H2)^2$

10

Knowing you NPA-NXX can help you determine your V&H Coordinates via web resources

Also note that service providers always round up

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Samples

SVC ESTBL	QTY	CODE	DESCRIPTION	TAX	AMOUNT	ACTVTY DATE
052605		CLS	95.HCGL.15 [REDACTED] NE			
			/ASG 4501			
			/NC HC--			
			/PIU 100			
052605	1	XZH1R			052605	
052605		CKL	1-56 ROLAND, SOM, MA			
			/LOC BLDG NEON POP			
			/SN [REDACTED]			
			/LSO 617 666			
---SERVICE AND FEATURES---						
			/NCI 04DS6.44			
			/HBAN [REDACTED]			
			/CFA 4501 T3Z			
			/TAR H900			
			/CBNA 00ENG			
			/LCON [REDACTED]			
			/POI CHTMMABFW01			
			/FLR 1			
			/RM TELCD			
			/LSOC SDVLMACEDSO			
052605		CKLT	2-SOVLMAKE31		052605	
052605		CKL	3-225 FRANKLIN, BOS, MA		052605	
			/LOC [REDACTED]			
			/SN [REDACTED]			
			/LSO 617 926			
			/NCI 04DU9.B			
			/TAR H900			
			/LCON [REDACTED]			
			759			
			/XPOI BSTAMAFKN87			
			/ZCAC SRH2PR3			
			/LSOC BSTNMAHADS9			
052605	24	S25			052605	
			INTER MA - EC 5112 100.00 % X 24			
			y 25.00		600.00	
052605	1	TNECS	/ZONE 1		052605	
			INTER MA - EC 5112 100.00 % X 1			
			x 197.00		197.00	
052605	4	1L5XX	/PBD 6		052605	
			INTER MA - EC 5112 100.00 %			
			(55.00+ (27.37 X 4)		164.48	
			INTERSTATE SUBTOTAL MA 5112		961.48	
			CIRCUIT SUBTOTAL			
			MA 5112		961.48	

CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
303	JUL 19 06 *CSR LIVE P 1 5		
	PSO 1		
XSBN K 303	/CS XDH3X/SIC 05999-135		
	EAC A		
	BOC 72E		
---	CTL DNVRCOBWA01		
---	BILL XXXBL1WXXX		
	MCN [REDACTED]		
	SS [REDACTED]		
	CBR [REDACTED]		
	BN1 [REDACTED]		
	BN2 [REDACTED]		
	BA1 [REDACTED]		
	PO [REDACTED] /TAR BF		
	[REDACTED] /TAX C L L Y		
	GRP K 303 [REDACTED]		
	CRV [REDACTED]		
	TACC QADV. 183192		
	BAPC 19A		
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 2 5		
	PSO 1		
---	S&E		
	ORIG SERV ESTAB 6-10-05		
61005	1706	CLS 24.HFGS [REDACTED] .MS	.00 .00
		XDH3X/MTN	
		CHANNEL MILEAGE	
61005	1706	[REDACTED] /MTN/RAX QA	650.00 650.00
		/DES 303 320-303 534	
61005	1706	[REDACTED] /MTN/RAX QF	85.00 340.00
		/DES 303 320-303 534	
		CIRCUIT LOCATIONS	
		CKL 1 -4301 E COLFAX AVE.	
		DENVER, CO	
		/SN QWEST CO	
		/LCON COT. 303	
		000-0000	
		/CKLT 1-DNVRCOEA	
		/LSO 303 320	
RP	NOTATION	TYPE	PN ACT FU BD
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 3 5		
	PSO 1		
		/DES WACD XC	
		24.HFGS [REDACTED] .MS	
61005	1706	PQSQS/MTN/DES COCC	10.00 10.00
61005	1706	CIG /MTN/NC HF-- /NCI 04DS6.44A	.00 .00
		/DES DS3 HUB PORT	
		CKL 1 SUBTOTAL	10.00
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 4 5		
	PSO 1		
		CKL 2 -911 14TH, DENVER, CO	
		/SN QWEST CO	
		/CKLT 2-DNVRCOMA	
		/LSO 303 534	
		/LCON COT. 303	
		000-0000	
		/DES WACD XC	
61005	1706	24.HFGS [REDACTED] .MS	10.00 10.00
		PQSQS/MTN/DES COCC	
		CKL 2 SUBTOTAL	10.00
---	RMKS		
	RMKR		
CMD	MSG COMMAND COMPLETED(I210)	DNV	XDH3X
	JUL 19 06 *CSR LIVE P 5 5		
	PSO 1		
NOS	0	TOTAL EXCLUDING TAX	1010.00

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Circuit Designs

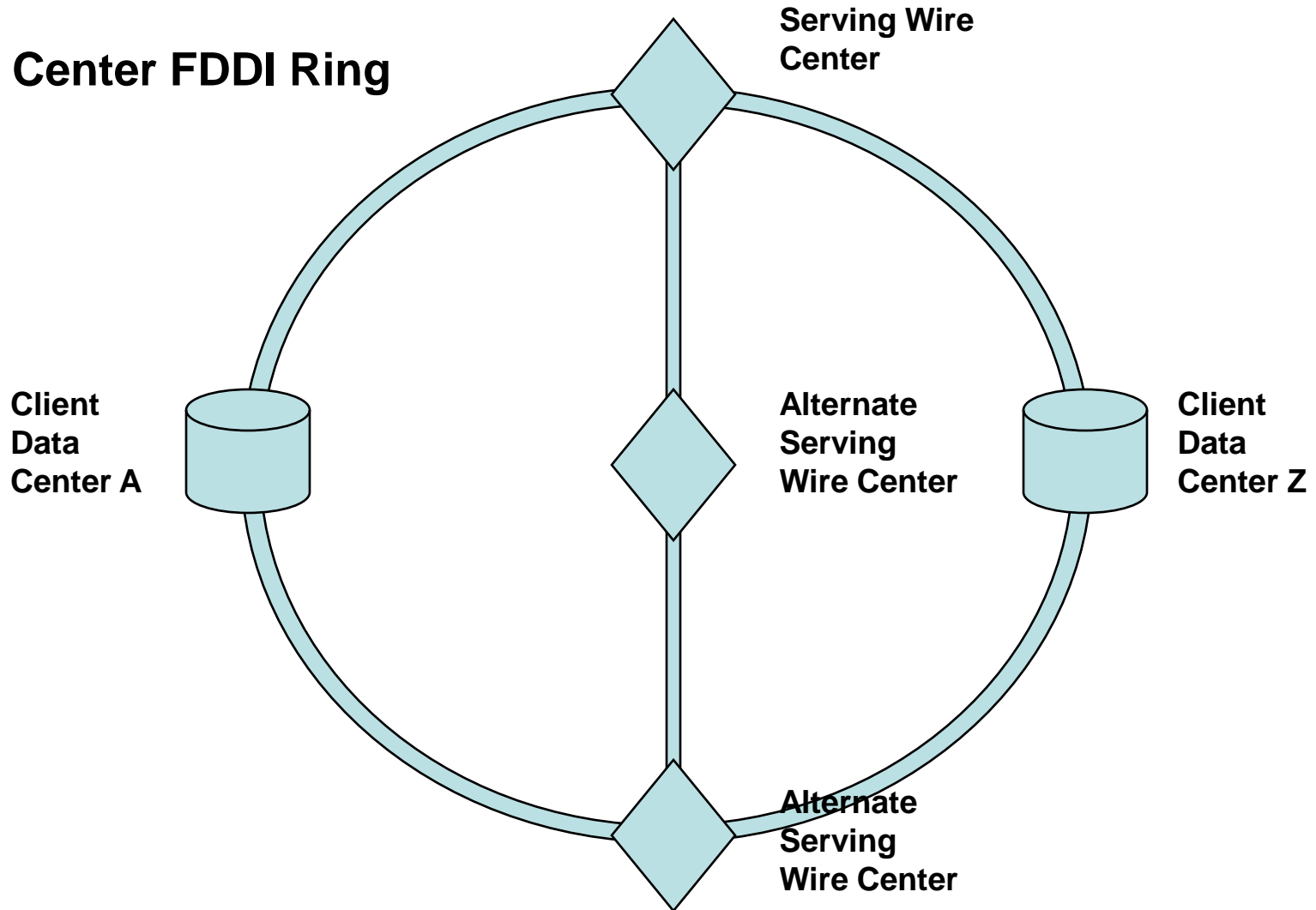
The ability to draw out a circuit from billing records has proven to be a win for auditors.

Simply put, anyone can map a USOC to a Vendor Cost Table but understanding the application can create several wins.

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Circuit Designs

Data Center FDDI Ring

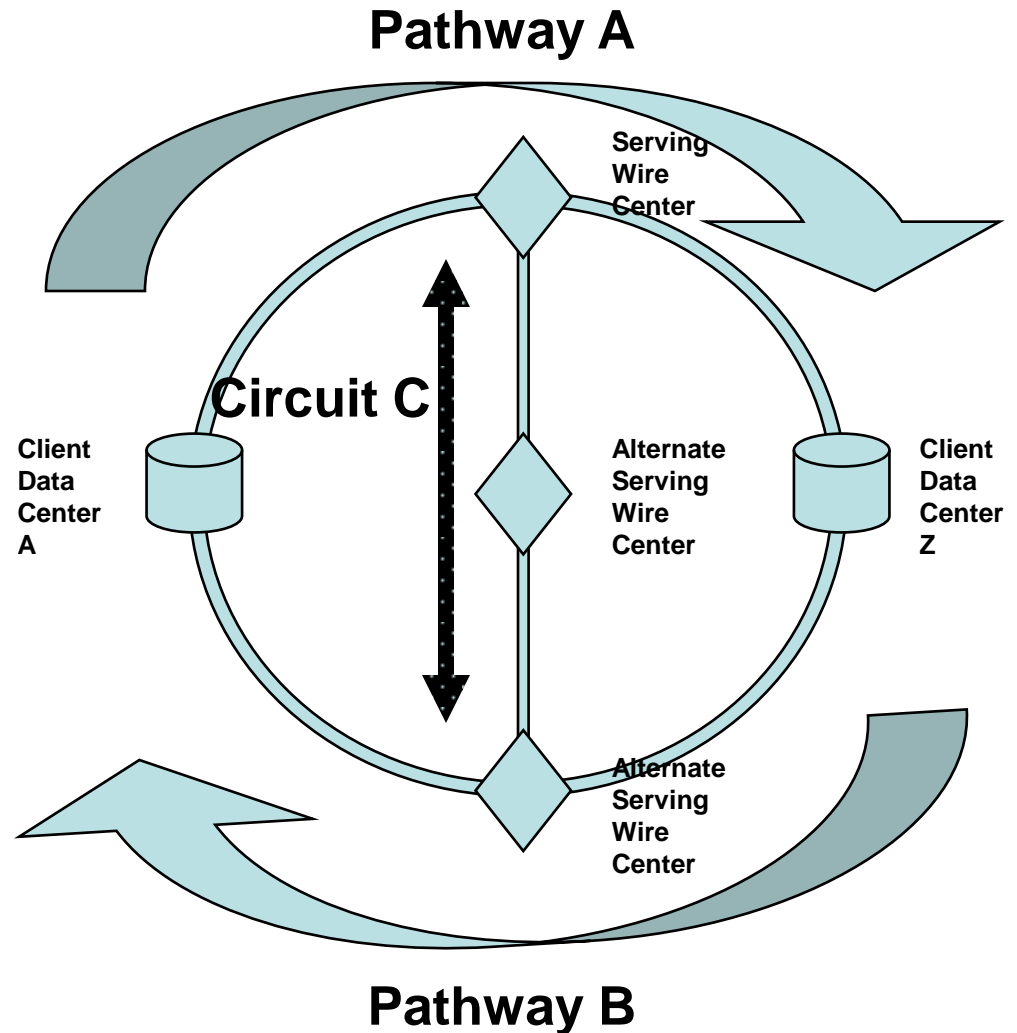


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The Application

Client Needed Redundancy Built for its Data Centers Application

- They built a Ring comprised of circuits taking different paths terminating at both locations
- 2. They used several Alternate Serving Wire Centers to accomplish their needs
- 3. The design was configured to backup Circuit A in case of a failure.



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Vendor Billed Charges for Design

Channel Terminations

- 4 at the Client's Sites
- 2 at the Vendor's Wire Centers

Channel Mileage

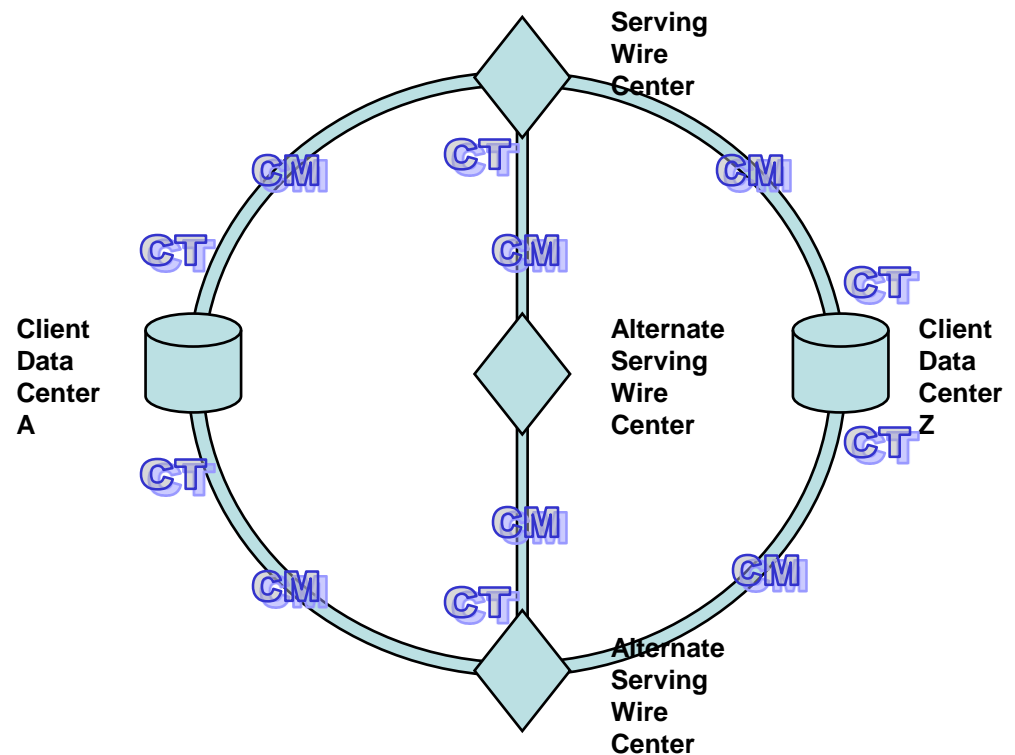
- 6 Different Mileage Components for each leg.

Alternate Wire Center

- 4 Charges for Diversity

All components of the rings are receiving term discounts under the agreement.

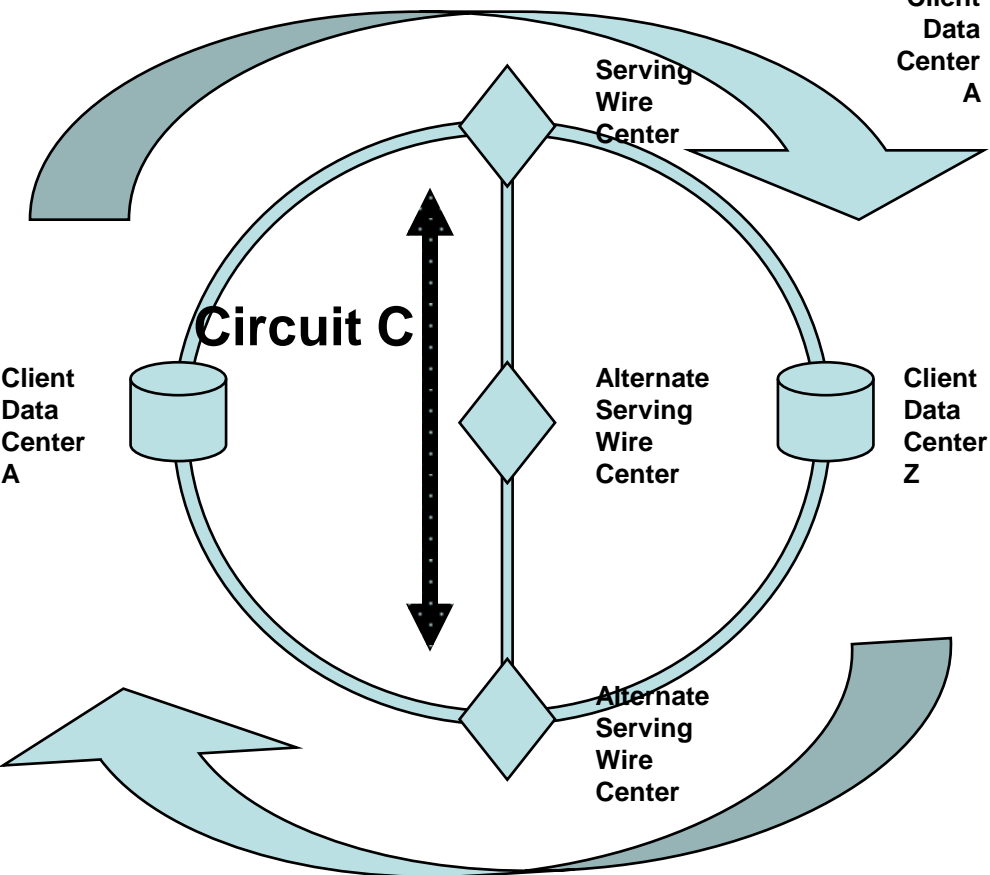
From a CSR and USOC perspective this is billing correctly and no billing errors exist.



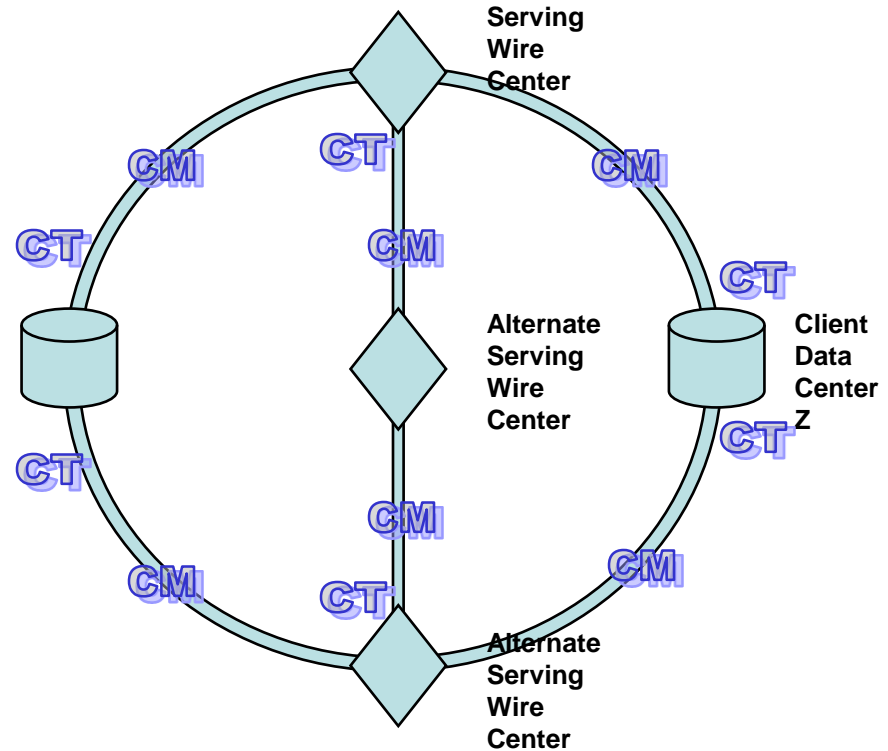
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Same Circuit Side By Side

Pathway A



Pathway B



Note: This Ring Design has a another layer of protection compromised of two additional circuits incurring Termination, Mileage and ASWC Charges.

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Why We Are Here Today. . .

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The Billing Issue

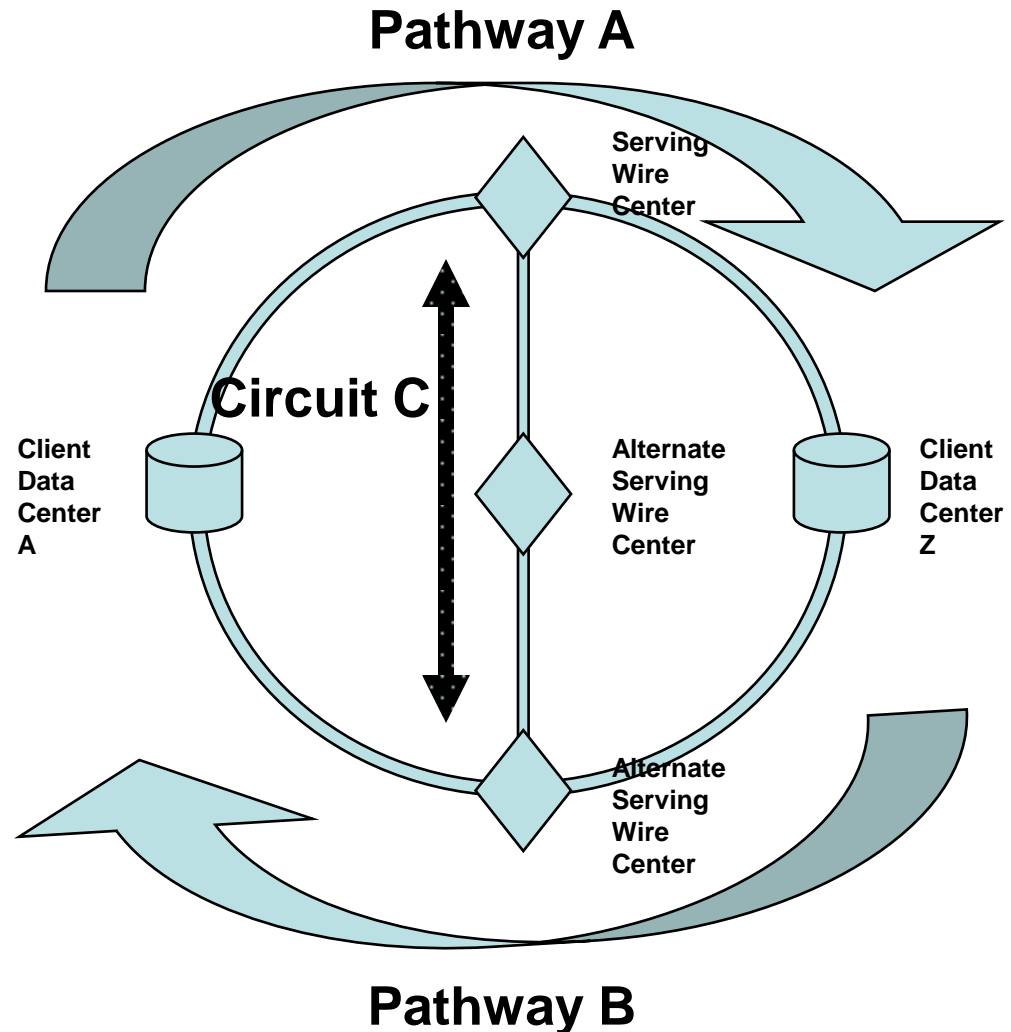
All associated charges mapped out correctly from a cost perspective.

Channel Termination and Mileage quantities costs tallied out to be correct.

Every element on the CSR matched the contract.

So What's The Problem? ? ?

The error stems from the FDDI Product Description in the Vendor's Tariff that illustrates the same application and design minus the third layer of redundancy which was not needed. The design in itself provided redundancy.



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Vendor Tariffs

Tariff – A statement by a communication company filed with the FCC that sets forth services offered and rates, terms, and conditions for those services.

Tariffs are your guide to better understanding the technology and how you're vendor billed.

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Tariffs

- **Each service provides a product description on the technology, its application, how it interfaces with other services and how it is billed.**
- **Some vendors also include diagrams in its tariffs.**
- **Understanding how the tariff is applied to your services will give you the knowledge you need to Audit & Optimize your Circuits**

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Key Points to Take Home

- **Customer Service Records hold a Wealth of information**
- **Have an understanding of the USOCs associated with your most costly services**
- **A Trend Analysis on the Services listed on your CSR may identify quick hits without all the research**
- **Drawing out circuits is a great way to better define how you are billed for services**
- **Use of the Vendor's Tariff can answer questions that they vendor themselves don't have answers too.**

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Tips, Tools & Techniques to Cut Your Wireline and Wireless Spending

November 13-14, 2006 • Dallas, TX • The Adolphus Hotel

Questions?

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BILLS**

