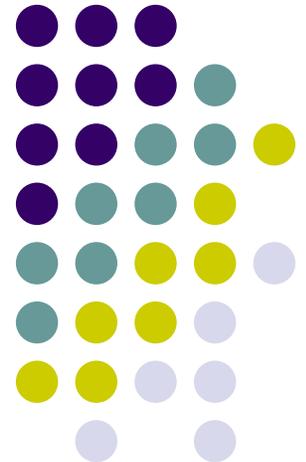


Telecommunications Initiatives Activities and Status

Information Systems Advisory
Committee
May 19, 2004



Moving to a New and Improved Network

In Support of Patient Care



- **Current Network**
 - IHS maintained a wide area network that supports patient data transfer, finance, personnel, E-mail and Internet Access
- **Remote Interactive Health Care**
 - We are moving to a true remote interactive health care solution that supports High Speed Large Capacity telemedicine transport facilities
- **Upgrading The Network**
 - New network technology that supports secure & high capacity bandwidth to distant health clinics

Moving to a New and Improved Network

In Support of Patient Care



- HHS (VBNS) Net

- As part of the “One HHS” the Indian Health Service along with the other Opdevs in HHS are combining their networks into one integrated network, based on VBNS
 - Very high performance Backbone Network Service
 - A cost effective network based on the latest industrial standards with a fully meshed network using high speed switching equipment (Juniper switching equipment)
 - This new network will allow high speed connections at much higher bandwidth than is currently available
 - With this higher speed not only the current users on the network will be serviced but also all aspects of Telemedicine can be supported.
 - MCI states that there is a significant reduction in costs for this network (20% to 25%)

Moving to a New and Improved Network

In Support of Patient Care



- **Secure Network with Adequate Bandwidth**
 - This secure high speed bandwidth is offered via the MCI FTS 2001 contract is incorporated in a new network topology called VBNS (Very High Performance Backbone Network Service)
- **VBNS**
 - VBNS by MCI is based on the latest Juniper high speed routers placed throughout the MCI network that allows high data transfer with fail safe redundant paths that will allow sites to continue operating even when major sites such as ABQ, in the old network model, are down

Moving to a New and Improved Network

In Support of Patient Care



- **HHS Requirement**

- This new network model also fulfills the requirement of Health and Human Services that the IHS join the HHSNET thus reducing costs even more and providing for a one HHS

- **Moving from the Single Point of Failure**

- This network design implementation changes the ways in which the IHS sites are connected to one another and also the method in which IHS accesses the Internet

Moving to a New and Improved Network

In Support of Patient Care



- **Internet Access**

- One of the major concerns of the IHS networks customers has been that of Internet access
- Currently IHS area offices have individual internet access points. To provide better security the IHS has redesigned these Internet access points to feed through a 45 Mbps pipe at ABQ with an automatic backup link at HQE that provides the same 45 Mbps access

- **The same Path as E-Mail**

- As you may or may not know all e-mail coming into and out of the IHS passes through the IHS gateway systems in ABQ with a soon to be automated backup system in HQE thus all e-mail and file transfers will continue to flow through the ABQ e-mail connection

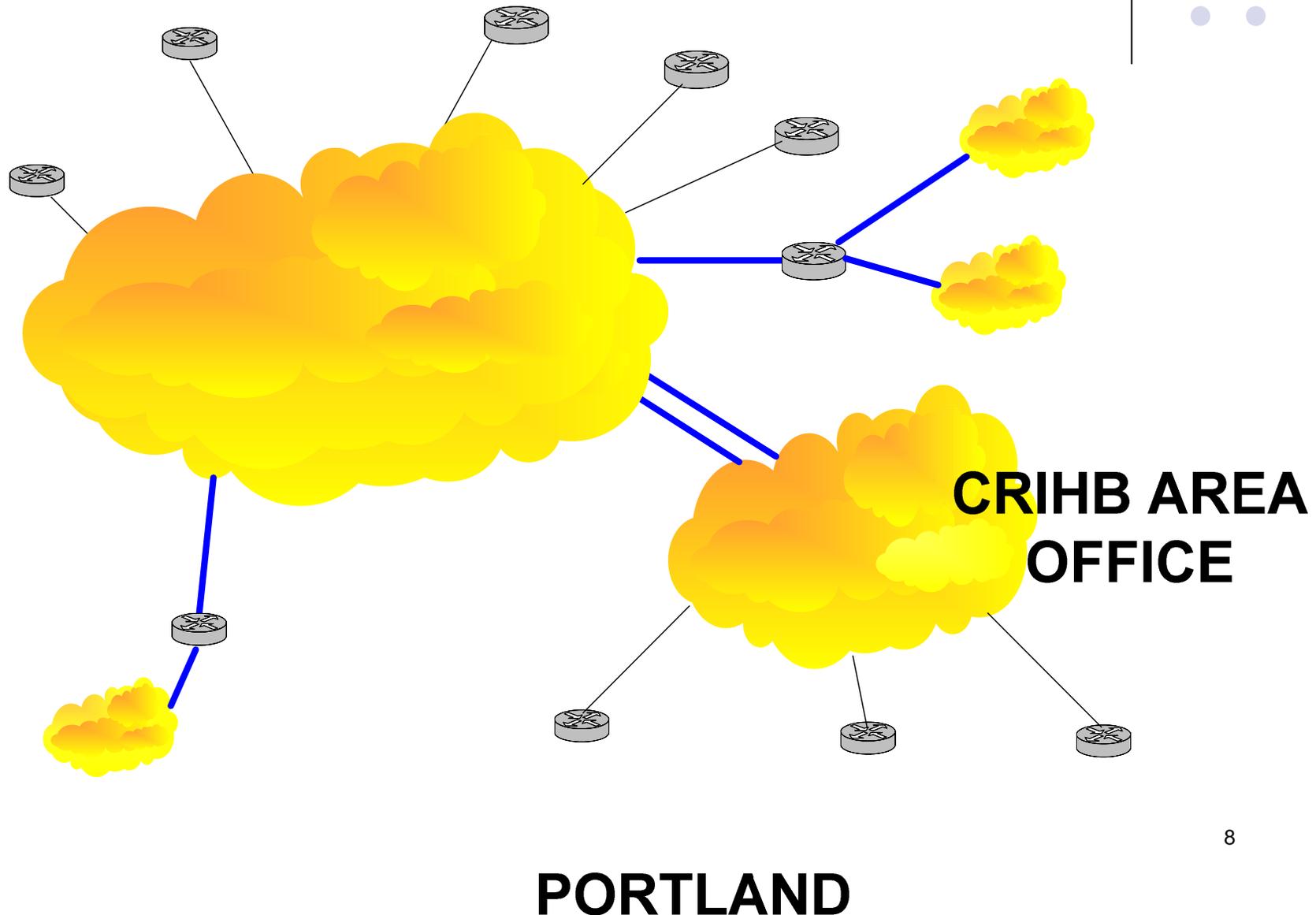
Moving to a New and Improved Network

In Support of Patient Care



- **Security & No Single Points of Failure**

- **With this new design Internet access topology security is enhanced by only having one active Internet access point for all of IHS as well as a substantial cost saving in Internet access fees**
- **Eliminates Single Points of Failure**
- **MCI Proactive (24x7)**
 - **MCI calls and verifies that can take circuit and test**
 - **Does not support on-site equipment failures**

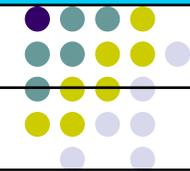


Moving to a New and Improved Network

In Support of Patient Care
Current Status



- All area offices converted except
 - Navajo
- T1 connections to the VBNS from Health Facilities will be completed by Thursday May 20, 2004 (62 circuits)
- 303 Frame Relay circuits
- Few weeks behind our on implementation schedule due to late shipment of T3 cards to our ABQ and HQE locations
- A Discussion point – LEC circuits

IHS Area	Effective Annual Total	Effective Annual Total	
CRIHB	\$ 175,993.21	\$ 258,733.38	
NASHVILLE	\$ 174,484.58	\$ 322,107.30	
ALBUQUERQUE	\$ 237,828.26	\$ 315,456.73	
ABERDEEN	\$ 356,254.60	\$ 493,589.41	
BEMIDJI	\$ 83,151.16	\$ 291,099.54	
CALIFORNIA	\$ 233,870.55	\$ 491,866.26	
OKLAHOMA	\$ 256,950.50	\$ 499,376.78	
PHOENIX	\$ 177,763.25	\$ 329,983.67	
PORTLAND	\$ 159,332.35	\$ 466,775.75	
HQEADM	\$ 149,572.69	\$ 105,702.84	
TUCSON	\$ 40,228.49	\$ 67,531.25	
BILLINGS	\$ 11,805.57	\$ 26,570.86	
Frame/ VBNS Gateways	\$ 251,502.33		
Total	\$ 2,308,737.54	\$ 3,668,793.76	

Windows & Exchange 2003



Active Directory Benefits

- Faster & Easier to Configure & to Deploy
- Fewer Administrative Issues
- Better Security (Secure E-mail)
- More Stable & Automatic Updates
- Better performance – new architecture handles hardware resources better
- Remote Desktop and Administration Tools
- Group Policy – Easier to manage
- Remote Installation Services
- Terminal Services

Windows & Exchange 2003

“One HHS”



- HHS E-Mail

- As part of the “One HHS” the Indian Health Service along with the other Opdevs in HHS are combining their E-mail into one integrated E-Mail system
 - A cost effective implementation of HHS E-mail that will allow for the interaction of all Opdevs within HHS to communicate with each other
 - This combined E-mail system will provide a cost effective solution for all HHS Opdevs
 - With this higher speed network configuration of the VBNS network IHS as well as other HHS Opdevs will have efficient connect to the centralized E-mail system
 - Completion scheduled for Early Spring of 2005
 - Contractor Selected

Windows & Exchange 2003



Active Directory

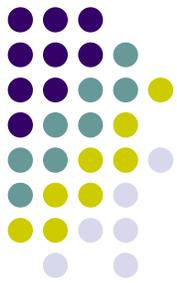
Update on Implementation Status

- Navajo Area
 - first to complete migrations to the Windows 2003/Active Directory/Exchange 2003
- The Bemidji Area, Phoenix Area & California Area are near complete.
- Other completed sites:
 - Headquarters
 - ITSC
 - Oklahoma Area Office
 - Pawnee
 - Albuquerque Area Office
 - Bemidji Area Office

Windows & Exchange 2003

Active Directory

Area Office Migration Schedule



- Tucson Area Office May 17 – June 4th
- Billings Area Office May 24 – June 4th
- Aberdeen Area Office June 7 – June 18th
- CRIHB June 21 – July 2nd
- Nashville Area Office June 21 – July 2nd
- Portland Area Office July 5 – July 23rd
- Seattle/Dallas OEH August 2 – 13th



E-Mail Access Via the Internet

- If an area is completed then
 - <https://hqwebmail.ihs.gov/>
 - No special software is needed to access IHS e-mail

Windows & Exchange 2003

Active Directory

What is left to Do?



- We are approximately half way through the migration for the IHS. Remaining Service Units need to be scheduled. Target date for completion of IHS migrations is December 31, 2004. We look forward to collapsing the entire Exchange 5.5 environment January 2005
- HHS has supplied the Opdevs with Bandwidth Calculator

Universal Services Fund



- The goals of Universal Service, as mandated by the 1996 Act, are to promote the availability of quality services at just, reasonable, and affordable rates; increase access to advanced telecommunications services throughout the Nation; advance the availability of such services to all consumers, including those in low income, rural, insular, and high cost areas at rates that are reasonably comparable to those charged in urban areas

Universal Services Fund



- Indian Health Service Rural Health Care Credit Report Year 2002
 - Total Credit \$181,221.37 +
 - Two years Late
 - Lack of personnel at MCI
- Where Did These Funds Go??
 - There are being credited to specific sites
 - Overall total at TUCYAK
- ITSC will be providing a complete listing of all sites and their related credits.

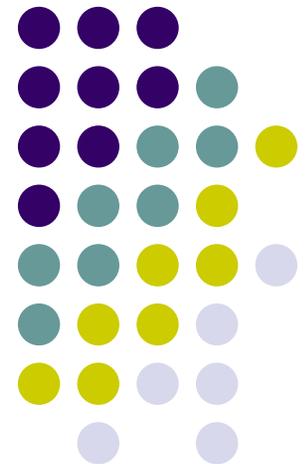
Universal Services Fund

Processed by ITSC



- **Aberdeen**
- **Bemidji**
- **California**
- **California Rural Indian Health Board**
- **Nashville**
- **Phoenix**
- **Albuquerque**
- **Tucson**
- **Oklahoma**

USAC PROCESS OVERVIEW



FORM 465 - Description of Services Requested and Certification Form



- **Applicants indicate on a single Form 465 whether they are applying for support for telecommunications service or Internet access discounts or both.**
- **It is the HCP's certification that it meets program eligibility requirements.**
- **Form 465 is also the means by which HCPs request bids from service providers for services to be used for the provision of health care.**
- **Form 465 is posted to the USAC Web Site for 28 Days to allow Telecarriers to bid on providing services to IHS.**
- **Form 465 is submitted by ITSC before July 1, 2003 to get a full year of funding.**



FORM 466 - Funding Request and Certification Form

- **Once the service providers and services are selected, the HCP completes and submits Form 466**
- **The Forms 466 specify the type of:**
 - **service ordered**
 - **the cost**
 - **the service provider**
 - **the terms of any service agreements**
 - **and certifies that the selections were the most cost-effective offers received**
- **Form 466 is filed by ITSC after 28 day 465 posting date expires and as soon as IHS Site is deem eligible by USAC Reviewing Team.**

Rural Health Care Division (RHCD) reviews Form 466 and/or 466-A packet



- **RHCD reviews the packet for accuracy and completeness. If RHCD has questions about the application, the HCP or service provider will be contacted.**
- **Rural/Urban Rate is calculated to determine IHS Service Units distance to the nearest urban area Which gives:**
 - If site is in a rural area it is eligible
 - If site is in an urban area it is not eligible
- **Rural/ Urban Rates are given by MCI to ITSC.**
- **Rural/Urban Rates is reported to USAC on Form 466 by ITSC.**
- **USAC calculates the rate from Form 466 to calculate how much monthly support is given.**

After Forms are reviewed, RHCD issues a Funding Commitment Letter (FCL)



Upon packet approval, RHCD mails to the HCP a Funding Commitment Letter (FCL) which is the amount of funding support awarded to each IHS Site.

HCP completes and submits Form 467 (Receipt of Service Confirmation Form) to RHCD



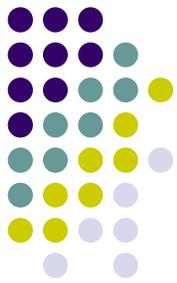
- **After the HCP begins to receive service from the service provider, it submits Form 467 (Receipt of Service Confirmation Form) to RHCD.**
- **The HCP must submit Form 467 in order to receive discounted services. RHCD cannot process Form 467 unless a Funding Commitment Letter has been issued to the HCP.**

RHCD reviews Form 467 and issues HCP Support Schedule (HSS)



- **Once Form 467 is received, reviewed, and approved, RHCD will send the HCP and its service provider(s) an HCP Support Schedule (HSS).**
- **At this point, the service provider can begin crediting the HCP's bill with the monthly recurring support amount or issue a check for the discount.**
- **As soon as the service provider has issued a credit or check to the HCP, it invoices USAC for that amount.**

After crediting the HCP, the service provider invoices
RHCD



- **For telecommunications carriers, USAC will then credit or reimburse the carrier's Universal Service Fund account.**

Moving to a Wireless Solution for Health Facilities

In Support of Patient Care



- **Develop of Standards for the Implementation of Wireless Technology**
 - Provide a secure environment for the transmission of data without using hard wired connections
 - Allow medical providers and administrative staff the capability to access the Internet and other resources using wireless technology
 - Support the Electronic Health Record (EHR)
 - With this wireless technology medical providers will be able to access the patient chart and related information from hand held computer devices that replacing the time honored paper records

Moving to a Wireless Solution for Health Facilities

Wireless LAN Policy



- 802.11i is not yet available in the industry
- Recommendations
 - FIPS 140 compliant technology
 - Air-Fortress Technology
 - Gateway and client
 - VPN solution using Windows XP or 2000 SP3 clients

Video Conferencing

A Request

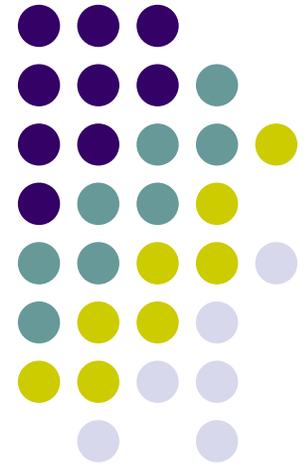


- RADM Beato, Acting Assistant Secretary of Health, RADM Carmona, Surgeon General, and RADM Grim are scheduled to present a commissioned corps transformation briefing via live tele-video conference to the Indian Health Areas on Tuesday, May 11, from 10:00am to 12:00 noon eastern time
- The intent of RADM Beato, RADM Carmona, and RADM Grim is **to reach as many Commissioned Officers as possible** to allow the exchange of information via live tele-conference.

Video Conferencing

In the Indian Health Service

- IP Video (H.323 Video over IP)
- 85 Sites have Video Equipment
- ITSC, Phoenix & Navajo
 - video bridges



Video Conferencing

In the Indian Health Service



- Used outside Bridge (AT&T) to handle all the sites
 - Open Firewalls
 - Map Video equipment to specific address
 - Backup Audio calls
- Participants
 - 11 Area Offices
 - 30 Voice connections

Video Conferencing

In the Indian Health Service



- Need Training for all sites on operation of Video equipment
- Bridge setups to communicate with other vendors bridges
- A Better means of communicating with sites on scheduling of video calls
- Develop operations manual
- Infrastructure Upgrades (LAN – in process)



IP Address Overlap - NAT

- Kayenta, Chile, & PIMC
 - Overlapping IP addresses in the private range
 - PIMC
 - 172.16.16.0/20
 - Kayenta
 - 172.16.20.0 /24
 - Overlaps with PIMC 172.16.16.0/20
 - Chinle
 - 172.16.30.0/23
 - Overlaps with PIMC 172.16.16.0/20

Private IP Space

Recommendation



- Recommendation:
- 10.254.0.0/16 - ITSC
- 10.253.0.0/16 - Aberdeen
- 10.252.0.0/16 - Albuquerque
- 10.251.0.0/16 - Alaska
- 10.250.0.0/16 - Bemidji
- 10.249.0.0/16 - Billings
- 10.248.0.0/16 - California
- 10.247.0.0/16 - CRIHB
- 10.246.0.0/16 - Nashville
- 10.245.0.0/16 - Oklahoma
- 10.244.0.0/16 - Phoenix
- 10.243.0.0/16 - Portland
- 10.242.0.0/16 - Rockville
- 10.241.0.0/16 - Tucson

VPN Update



- Additional Users Available
- Reviewing –
 - SSL remote-access appliance Neoteris Access 1000 is connected to the network, giving employees who are at home or on the road secure access to everything from e-mail and clinical systems