

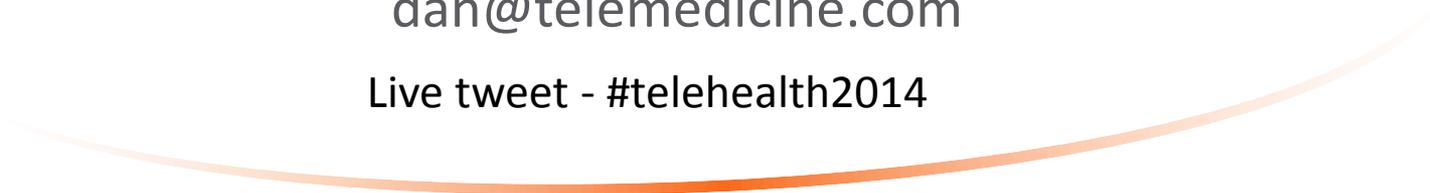
Affordable Telemedicine Solutions

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Live tweet - [#telehealth2014](#)



Goals

- Demystify Telemedicine Low Cost Technologies
- Think outside of the marketing machine
- Learn the benefits and challenges of switching to wireless and smart technologies
- Q&A to discuss all Telemedicine IT questions



History

- Fads Come and Go

Mullet Hair Cut, Who's This?

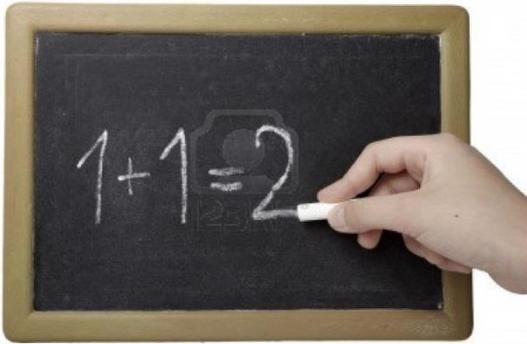


Rubik's Cube



Dances & Clothes





Blackboard & Chalk



**Whiteboard &
Dry Erase Markers**



Smartboard

**Are you still holding
chalk, should you be?**

History

- We learn about history to not repeat the past?



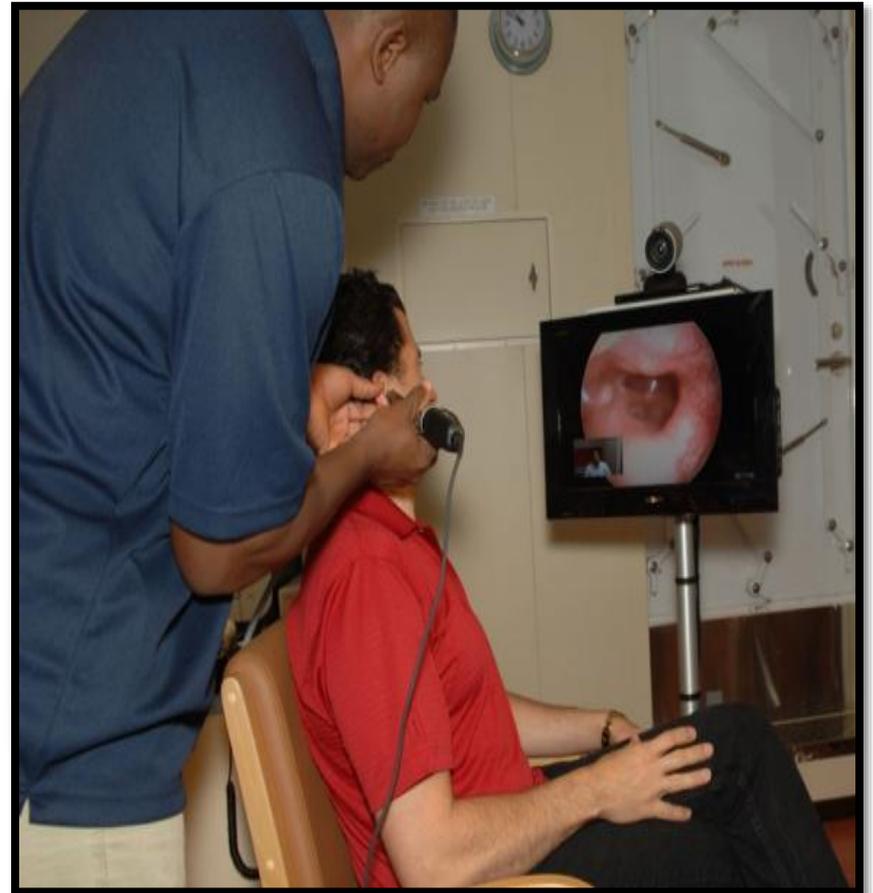
History

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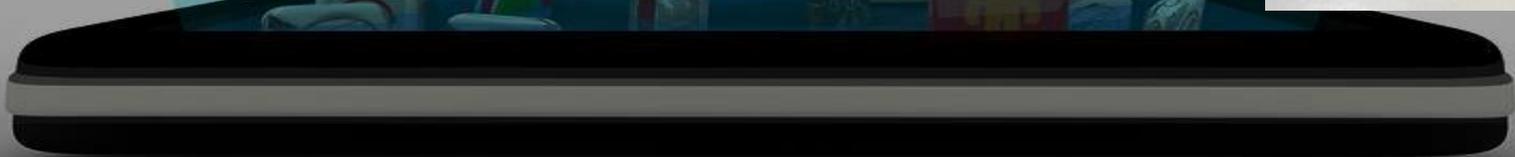
Huge camera, plastic camera lens instead of glass, size of the lens, no optical zoom only digital.

Current Video Conferencing Systems



New Hardware Solutions & Applications

Smartphones, Tablet, Laptops, Split Laptop, etc.



New Smart Hardware Solutions

Video Conferencing Systems

Pros

- Less Expensive
- Much Smaller
- Lighter Weight
- Wireless
- New Applications



New Smart Hardware Solutions

Video Conferencing Systems

Cons

- Only wireless network access depending on the device
- Susceptible to viruses attacks
- Software corruption
- File saving capabilities
- Difficult or no ability to convert files to other formats such as PDF's
- EMR support
- No local FECC
- Audio Quality
- Video movement (hand held)
- No automated video input selection
- No video inputs for legacy medical peripherals

Big Myths?

- Technology, it just works

PHARMA & HEALTHCARE | 11/30/2013 @ 10:42AM | 74,955 views

ObamaCare Website Crashes When CNN Tests Upgraded Version

By Noel Sheppard | December 4, 2013 10:42 AM

Share 5128



Untrustworthy Obama Stacks Audiences with Hecklers as Obamacare Debacle Hurts His Polls

A really fun account at

November 26, 2013

It crashed BEGIN TRANSCRIPT



Avik



RUSH: The Health Care Stack just keeps growing and growing and growing. The Obama poll numbers continue to plummet, and now Wolf Blitzer is officially concerned at CNN, finally addressed the poll numbers. Obama is now stacking his personal appearances with hecklers. A lot of people are making a big deal about the heckler in San Francisco at Obama's immigration rally or appearance. Somebody wrote the script for the heckler, and it allowed Obama to portray the Limbaugh Theorem, "Yeah, I agree with you, I'm trying to fix it. I'm working with Congress, but, you know, I just can't make law any time I want to."

Well, what's stopping you all of a sudden? You've been making law ever since you became president. The Health Care Stack includes a new discovery that the unions have been supported from a bunch of Obama-care fans. It just keeps adding up. I mean, no matter



Windows Media



Make the Connection

- How do medical peripherals connect to video conferencing systems monitors, networks and remote locations?
- 

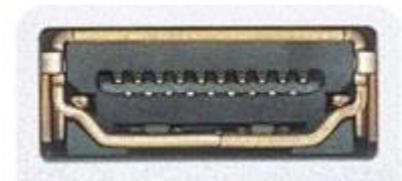
Standard Cable Connections

- Composite (RCA) Audio
 - White and Red
- Composite (RCA) Video
 - Yellow
 - Chrominance/Luminance
 - Ground
- S-Video
 - 4 pins
 - 1 Chrominance
 - 2 Luminance
 - 3 & 4 are grounds



Standard Cable Connections

- Component Video
 - R – Red
 - G – Green
 - B – Blue
- HDMI
 - Includes audio and video



Make the Connection

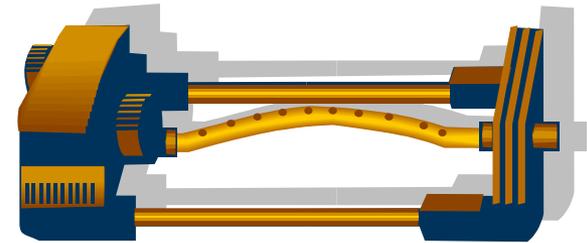
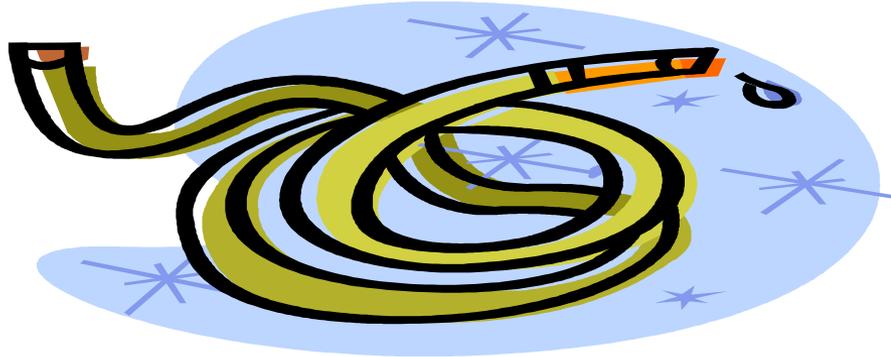
Basics of Electronics Flows just like water



1 - "Out" of the Faucet

2 - "In" to the hose

3 - "Out" of the hose



4 - "In" to the sprinkler

Make the Connection

Basics of Electronics Flows just like water



1 - "Video Out" of the Medical Peripheral

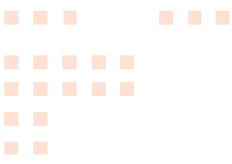
2 - To "Video In" on VC



3 - "Video Out" of the VC

4 - "Video In" to the Monitor





Choosing Medical Peripherals

- Specialty (some scopes can support multiple)
 - Current video system
 - Audio/video connections
 - Standard Definition
 - High Definition
 - Many of the new VC systems don't even have composite and s-video connectors any more.
 - What system does the site you are connecting to have?
 - Electronic Stethoscopes
- 



Should you make the switch to wireless?

- Considerations
 - What will be on the wireless network
 - Broadband
 - Utilization
 - Latency
 - QOS
 - Floors, walls, windows, etc.
 - Spectrum analysis required
- 

What is Bluetooth?

- Bluetooth wireless technology is built into a wide range of products, from cars and mobile phones to medical devices and computers. Bluetooth technology you share voice, music, photos, videos, and other information wirelessly between two paired devices. (2400–2480 MHz)



What is the "Cloud"



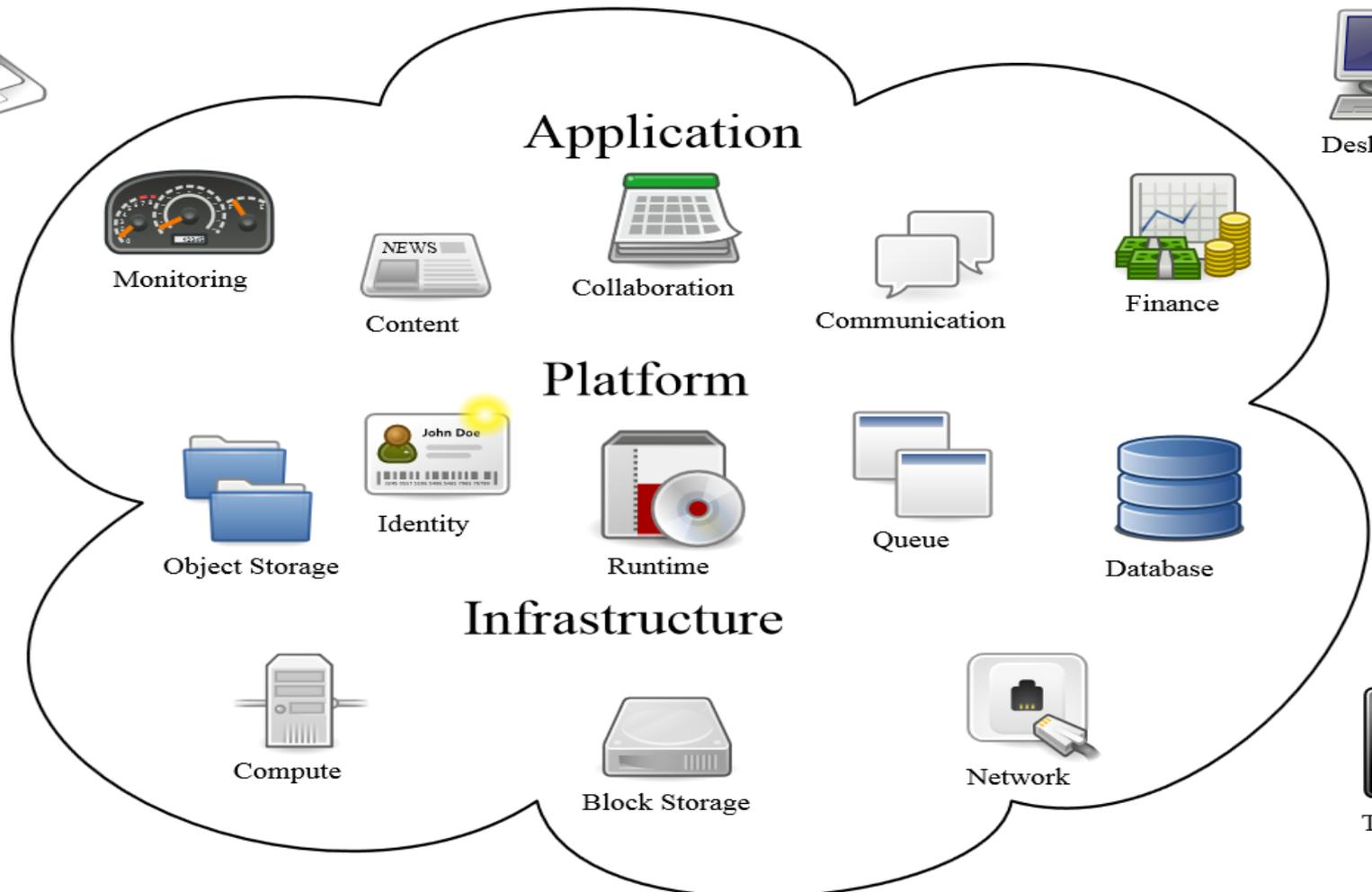
Servers



Laptops



Desktops



Application

Platform

Infrastructure



Monitoring



Content



Collaboration



Communication



Finance



Object Storage



Identity



Runtime



Queue



Database



Compute



Block Storage



Network

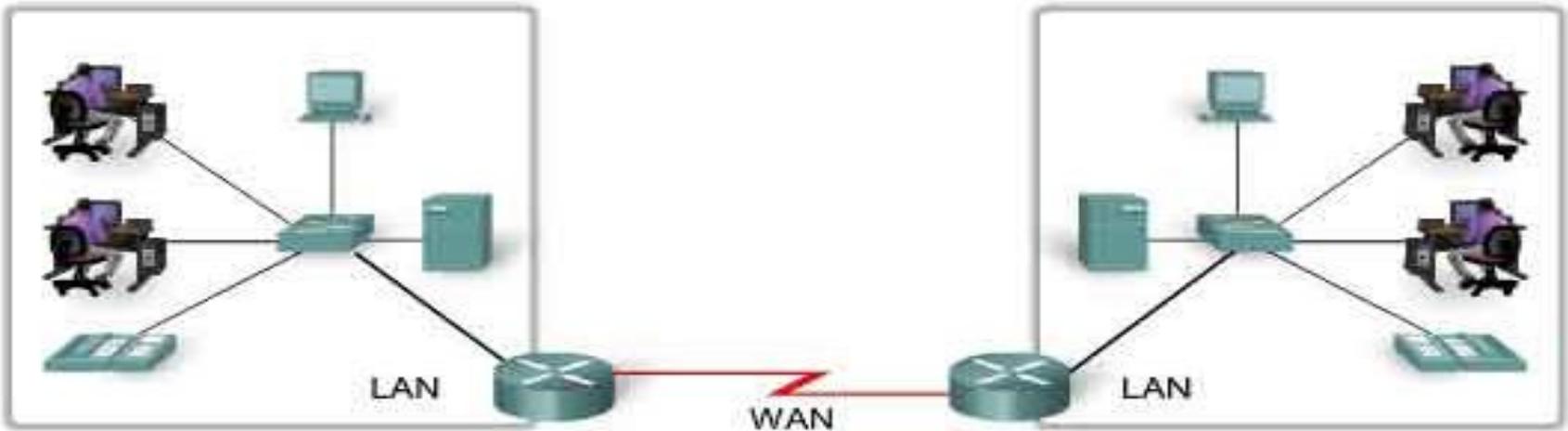
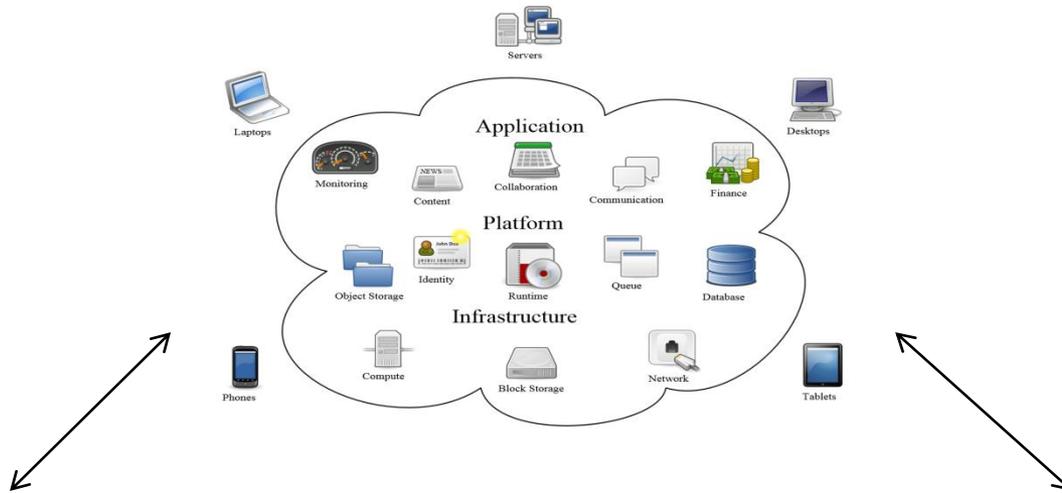


Phones



Tablets

What is the "Cloud"



Big Myths?

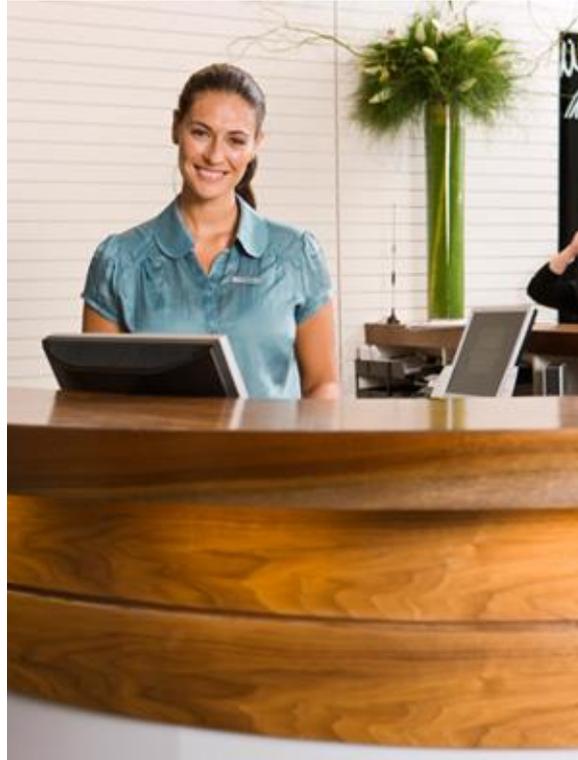
- Telemedicine is only for rural locations
- Bigger is better...
- Light weight
- Easy to move
- UPS
- Monitor - Max size 22"



- 
- Are you ready to make the switch from high-end video conferencing systems to laptops, ipads, and smart phones?
 - Texting medical data?
 - What specialties do you plan to support?
 - No physical inputs available, must use wireless.
 - What medical peripherals do you currently have?
 - Are they blue tooth enabled?
 - Do the sites you connect to have mobile technology and using the same applications. May or may not be an issue
 - 3g/4g are internet based networks, will that be an issue
 - Cloud Computing
 - Patient data storage – risk management
 - All data images are on the cloud
 - No local storage
- 

Big Myths?

- Doing Telemedicine over the Internet



- “Please have a seat, the doctor will see you in a couple of minutes or not at all”

Internet Connection
High Speed Broadband
“Your Private Onramp...”



The Internet
“The Freeway”
Extremely Cyclical

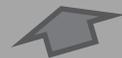
Big Myths?

- Internet **may** be a viable solution in the following circumstances
- One phone company end to end
- QOS (quality of service)

Internet Connection

High Speed Broadband

“Your Private Onramp...”



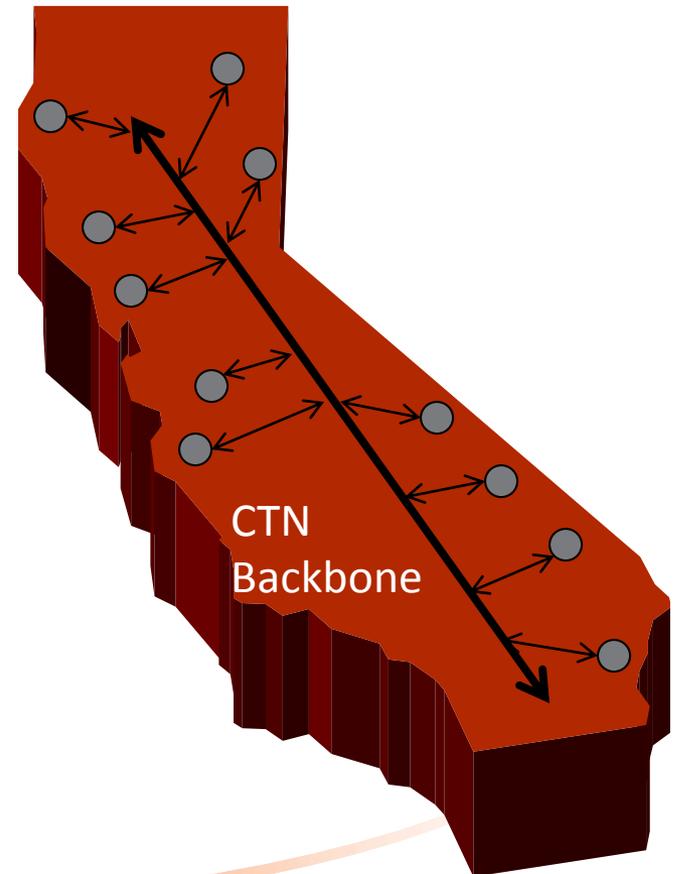
Private onramp to
Internet

The Internet
“The Freeway”
Extremely Cyclical

Low Cost Network Solutions

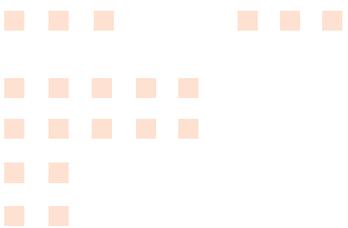
California Telehealth Network

- A state wide broadband network dedicated to expanding health care access in rural and medically underserved communities



Future of Affordable Telemedicine Technology

- Healthcare Internets like the CTN in each state connected together to create a nationwide matrix
- Wireless handheld devices designed specifically for Telemedicine with embedded sensors
- Wider selection of Bluetooth medical peripherals
- Combined Cloud Services of EMR, Video Conferencing, Store & Forward, etc.
- Home health systems that tie-in with cable TV subscriptions



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