COMPUTER LABS AND CLASSROOMS WITH STUDENT COMPUTERS

The status of technology in computer labs and computer-equipped is in a state of flux due to the many renovation projects occurring on campus. The following document is the inventory that was in place in Fall 2010 and does not account for impending renovations to the Naio, Kopiko, and Koki‘o buildings as well as ongoing renovation or repair/maintenance projects in ‘Ōlapa and Mānele.

2010 KCC Computer Labs and Classrooms w/Student Computers

As of August 1, 2010

Building	Room #	Desktop	Laptop	Printer	Department	Comments
Iliahi	106		20		Internet Café	Classroom for international students only
Iliahi	113	5	24		Trio	Trio use only - Computer LAB
Iliahi	207		40		Math (Pre-college)	Computer Lab/Classroom
Iliahi	208		40		Math (Pre-college)	Computer Lab/Classroom
Iliahi	231	9	40		Kahikoluamea	Classroom
Iliahi	231-elima		20		Kahikoluamea	Classroom
Iliahi (Wing C)	Downstairs Open Area	3	20		Office of Student Services	Computer Lab
Ilima	103	2	3	1	DSSO	DSSO use only - Computer Lab
Kalia	109	24	2	2	Language, Linguistics, & Literature	Classroom - Thin Client
Kalia	110	24	2	2	Language, Linguistics, & Literature	Classroom - Thin Client
Kauila	113	14		1	Health Science	Classroom
Kauila	114		20	1	Health Science	Classroom
Kauila	210	6		1	Health Science	Classroom
Koa	102	30		1	Humanities	Media Arts only - Computer Lab/Classroom
Koa	103	30		1	Humanities	Media Arts only - Computer Lab/Classroom
Kokio	101		20	1	Math Science	Classroom
Kopiko	101	30		1	Business	Business only - Computer Lab
Kopiko	102	26		1	Business	Classroom
Kopiko	103	26		1	Business	Classroom
Kopiko	104	21		1	Business	Classroom
Kopiko	202	30		2	Humanities	Media Arts only - Computer Lab/Classroom
Kopiko	Various		30		Nursing	Mobile Classroom
Lama	100	74	2		Library	Pay for Printing
Lama	101	24			Library	Compass and Special Testing
Lama	116	20			Library	Thin Client - Special Use - Permission
Lama	118	20		1	Library	Kapio - Classroom
Mamane	101	25		1	Business	Classroom
Mamane	104	26		2	Non-Credit	Transition Area
Manele	102		24	2	Hawaiian Studies	Hawaiian Studies only - Computer Lab
Ohelo	111	5	20		Food Services	Classroom
Ohelo	120		14		Food Services	Classroom
Ohelo	124	31		1	Food Services	Classroom
Olapa	113	30		2	Hospitality	Computer Lab/Classroom
Olapa	115	30		2	Hospitality	Computer Lab/Classroom
Olapa	204	20		1	Language	Classroom
Olona	209	15	30	1	Social Science	Social Science only - Computer Lab/Classroom
Total		**600**	**371**			**Grand Total = 971**

Note: Olapa 206 and Lama 118 are Macintosh computers. All other rooms are PCs.

GENERAL CLASSROOM INVENTORY

Classroom inventory with regards to technology is in a state of flux due to the many renovation projects occurring on campus. The following document is the inventory that was in place in Fall 2010 and with impending renovations to the Naio, Kopiko, and Koki‘o buildings as well as ongoing renovation or repair/maintenance projects in ‘Ōlapa and Mānele, this list does not reflect the relocation of equipment that occurs on an ad hoc and dynamic basis.

2010 KCC Classroom Technology Inventory

As of November 15, 2010

Building	Room #	Projector	VGA Cable	Speakers	DVD/VCR	Television	Prj Screen	Desktop	Laptop	Printer	Microphone	Video Conf.	Comments
Chapel	101			1	1	1					1		
Iliahi	103	1	1	1	1		1	1					
Iliahi	104	1	1	1	1		1	1					
Iliahi	105	1	1	1	1		1	1					
Iliahi	106	1		1			1		20				Classroom for international students only
Iliahi	107					1							Conference Room
Iliahi	202	1	1	1	1		1						
Iliahi	203	1	1	1	1		1						
Iliahi	204	1	1	1	1		1						
Iliahi	205	1	1	1	1		1						
Iliahi	206	1			1	2	1						
Iliahi	207				1	1		41					
Iliahi	208				1	1		41					
Iliahi	231							9	40			1	
Iliahi	231-Ekahi					1	1						Capable of combining to one room
Iliahi	231-Elua					1							Capable of combining to one room
Iliahi	231-Ekolu					1							Capable of combining to one room
Iliahi	231-Eha						1						
Iliahi	231-Elima	1		1	1		1		20				
Iliahi (wing C)	Downstairs Open Area							3	20			1	
Iliahi	Ekahi						1						
Iliahi	Elua						1						
Iliahi	Ekolu						1						
Ilima	202A				1	1	1						Capable of combining to one room
Ilima	202B	1			1	1	1						Capable of combining to one room
Ilima	202C	1			1	1	1						Capable of combining to one room
Kalia	102	1	1	1	1	1	1	1					
Kalia	104	1	1	1			1	1					

Building	Room #	Projector	VGA Cable	Speakers	DVD/VCR	Television	Prj Screen	Desktop	Laptop	Printer	Microphone	Video Conf.	Comments
Kalia	109	1	1	1	1	1	1	1		2			Thin Client with 24 stations
Kalia	110	1	1	1	1	1	1	1		2			Thin Client with 24 stations
Kalia	201	1	1	1			1	1					
Kalia	202	1	1	1			1	1					
Kalia	203	1	1	1			1	1					
Kauila	104	1					1					1	
Kauila	108	1		1	1	1	1						
Kauila	109	1			1	1	1					1	Smart Board
Kauila	110				1	1	1						
Kauila	113				1	1	1	14					
Kauila	114				1							1	
Kauila	201						1	4					Smart Board
Kauila	202				1	1	1						Usually set as one conference room(with 203, 204), Smart Board
Kauila	203				1	1	1						Usually set as one conference room(with 202, 204)
Kauila	204				1	1	1						Usually set as one conference room(with 202, 203)
Kauila	205											1	205 & 206 usually set as one room, Room exclusice to EMS
Kauila	206											1	205 & 206 usually set as one room, Room exclusice to EMS
Kauila	207						1						
Kauila	208	1			1	1	1						
Kauila	209	1			1	1	1	3					
Kauila	210				1	1		6					

Building	Room #	Projector	VGA Cable	Speakers	DVD/VCR	Television	Prj Screen	Desktop	Laptop	Printer	Microphone	Video Conf.	Comments
Kauila	216	1			1	1	1						
Kauila	217				1	1	1					1	
Koa	102	1		1			1	30					
Koa	103	1		1			1	30					
Koa	200						1						
Koa	201				1	1	1	1					
Koa	203	1					1						
Koa	204				1	1	1						
Kokio	101	2		1	1	1	1		20				
Kokio	106	2		1	1	1	1	1	1				
Kokio	107	2		1	1	1	1						
Kokio	109	2		1	1	1	1						
Kokio	202	1					1						
Kokio	202C	2		1	1	1	1						
Kokio	208	2		1	1	1	1						
Kokio	209	1					1						
Kokio	209A	1	1	1			1						
Kopiko	101							30					
Kopiko	101E						1						
Kopiko	102	1						26					Computer Lab/Classroom
Kopiko	103	1						26					Computer Lab/Classroom
Kopiko	104	1						21					Computer Lab/Classroom
Kopiko	126	1		1	1	2		1					
Kopiko	127	1		1			1				1		
Kopiko	128	1		1			1				1		
Kopiko	202	1		1			1	30		2			
Kopiko	209						1						Conference Room
Kopiko	240	1		1			1				1		
Kopiko	241	1		1			1				1		
Kopiko	242	1		1			1				1		
Leahi	002				1	1	1						
Leahi	003				1	1	1						
Leahi	005				1	1	1						
Leahi	007				1	1	1						
Lama	111A	1	1	1	1	3	1	1				1	Conference Room
Lama	116	1		1			1						Thin clients 16 stations
Lama	118	1	1	1	1	1	1	20					
Maile	101	1		1	1	1							Audio System
Mamane	101												
Mamane	102												Transition Area
Mamane	103												Transition Area

Building	Room #	Projector	VGA Cable	Speakers	DVD/VCR	Television	Prj Screen	Desktop	Laptop	Printer	Microphone	Video Conf.	Comments
Mamane	104	1					1	26		2			Transition Area
Manele	101												Under Renovation
Manele	102												Under Renovation
Manele	103												Under Renovation
Manele	104												Under Renovation
Manele	106												Under Renovation
Manono	104	1	1	1	1	1	1						
Manono	110	1			1	1	1						
Mokihana	101	1			1	1	1						
Mokihana	102	1			1	1	1						
Mokihana	105	1			1	1	1						
Ohelo	111	1	1				1	5	20				
Ohelo	124	1					1	31		1			
Ohia	118	1	1	1	1	1	1				1	1	
Ohia	220										1		
Ohia	221						1						
Olapa	105	1			1	2	1						
Olapa	106	1			1	2	1						
Olapa	113	1		1	1		1	25		2			
Olapa	114	2				1		1					Conference Room
Olapa	115	2		1	1		1						
Olapa	116	2		1			1						
Olapa	204	1	1	1	1		1	20					
Olapa	205	1		1	1	2	1						
Olapa	211	1		1	1	2	1						
Olapa	212	1			1	2	1						
Olapa	213	1	1	1	1		1	1					
Olapa	214	2			1	1	1						
Olapa	215	2				2	1	1					
Olona	105	1		1	1		1		1				
Olona	106	1		1	1		1		1				
Olona	109			1	1	1	1						
Olona	115	1		1	1		1	1					
Olona	201	1	1	1	1		1	1					
Olona	202	1	1	1	1		1	1					
Olona	205	1	1	1			1	1					
Olona	208	1	1	1	1		1	1					
Olona	209	2		1		2	1	15	30				

RECENT CLASSROOM UPGRADE PROJECTS

Two recent Title III grant allocations in 2009 and 2010 enabled the campus to upgrade many classrooms that were previously lacking basic technology. Some computer labs were also upgraded.

The following is a list of the classrooms that were upgraded; the 2010 list is not reflected in the prior classroom inventory since it was just completed in january 2011. Also included is a list of the type of equipment installed in the rooms.

Title III funded classroom/lab upgrades
2009

Department/Room	Equipment
Kahikoluamea	
Iliahi 103 (math)	basic suite
Iliahi 209 (writing)	basic suite
Math/Science	
Iliahi 104	basic suite
Iliahi 105	basic suite
Olapa 213	basic suite
Arts and Humanities	
Kalia 202	basic suite
LLL	basic suite
Kalia 102	basic suite
LABS	
Kalia 109	thin clients
Kalia 110	thin clients
ʻōlapa 113	desktops
Lama 116	thin clients

A basic suite includes computer, DVD/VHS player, ceiling-mounted

Health Sciences				Projector	Screen	Instr. Station	DVD/VHS	Audio	Whiteboard	Remote	ELMO	Clicker
Kauila 109	Basic suite	$17,000.00		X		X	X	X	X	X	X	X
Kauila 216	Basic suite	$20,000.00		X		X	X	X		X	X	X
Kauila 217	Basic suite	$20,000.00		X		X	X	X		X	X	X
Kauila 113	Basic suite	$20,000.00		X	X	X	X	X	X	X	X	X
Kauila 104	Basic suite	$20,000.00		X		X	X	X		X	X	X

Culinary			
Ohia 109	sound system	$10,000.00	
Ohia 112	Labor costs	$5,000.00	supplement 10K Perkins grant which covered equipment but not labor

BLT				Projector	Screen	Instr. Station	DVD/VHS	Audio	Whiteboard	Remote	ELMO	Clicker
Kopko 103	PCs, no moni	$33,800.00	twenty-six CPUS and keyboards									
Mamane 104	Basic suite	$15,000.00		X		X	X	X	X	X		X

Arts & Sciences				Projector	Screen	Instr. Station	DVD/VHS	Audio	Whiteboard	Remote	ELMO	Clicker
Olona 105	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olona 106	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 105	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 106	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 205	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 211	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 212	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 214	Basic suite	$15,000.00		X	X	X	X	X		X		X
Olapa 215	Basic suite	$15,000.00		X	X	X	X	X		X		X
Kalia 102	whiteboards	$3,000.00	Did not have enough funds w/last renovation						X			

E-WASTE

As stewards of technology resources, CELTT coordinates the proper disposal of electronic waste (eWaste) for the campus. Equipment designated for disposal is inspected by CELTT staff to ensure that usable parts are harvested and that storage devices with sensitive data are destroyed. CELTT coordinates pickup of the eWaste with Auxiliary Services; the latter unit handles palletizing and shipping.

Technology

Technology home

ITS Services

System Status & Alerts

eWaste Pick-Up

IT Services by Campus

UH Manoa

UH Hilo

UH West O'ahu

Hawai'i

Honolulu

Kapi'olani

Kaua'i

Leeward

Maui

Windward

Related Units

Information Technology Services

Office of Technology Transfer and Economic Development (OTTED)

Department of Educational Technology (ETEC)

This page is maintained by External Affairs and University Relations.

Quarterly University of Hawai'i eWaste Pick-Up Program

Here you will find basic information concerning this systemwide recycling program along with links to representatives who can provide specific directions for preparation of UH-owned equipment at each campus collection point.

Program Highlights

- There is no charge for recycling, however the program is for UH equipment ONLY; no personal or public eWaste.
- Pickup of obsolete equipment is slated during the months of January, April, July, and October each year.
- Although the program is sponsored courtesy of Apple, all brands of electronics are accepted. List of acceptable equipment. (PDF)
- All equipment collected through the program will be recycled domestically in the United States in an environmentally responsible way; none of the commodity materials or byproducts of the recycling process are shipped outside of North America.
- A Certificate of Destruction will be provided when the destruction of the equipment is completed.

Program Requirements

- You should ensure that any hard drives being recycled have been cleansed of all sensitive data. For comprehensive information concerning clearing of data refer to the AskUs article Recycling Electronic Devices Securely.
- You are encouraged to advertise equipment for reuse on the UH Electronic Swap Meet prior to recycling.
- All equipment must be processed per the Disposal Guidelines For Unused UH Computer Equipment.

Contacts

Big Island (Hawai'i)

Hawai'i Community College
William Affonso
Stephen Schulte
University of Hawai'i at Hilo
Follow procedures in this document (PDF)

Kaua'i

Kaua'i Community College
Tom Kajihara

Maui

University of Hawai'i Maui College
Robert Albert
Robert E. Burton

O'ahu

Honolulu Community College

Recycling Responsibly

Due to the rapid advancement of technology, electronic equipment is the largest growing category of solid waste. According to Consumer Reports over 130 million cell phones are discarded each year in the U.S. alone; it's also estimated that nearly 2 in 10 consumers disposed of a desktop computer or monitor in the past year by throwing them in the trash. These statistics point to the possibility that our planet's landfills may end up being contaminated from harmful chemicals contained in electronic waste (eWaste).

Through sponsorship of Apple, the university has been able to sponsor Earth-friendly government/public drop-off recycling programs such as Hawai'i's Education & Government eWaste Disposal Days 2008; any future dates for drop-off recycling of electronics through the university will be announced at that program's webpage.

Ken Kato

John A. Burns School of Medicine

Follow the procedures in this document (PDF)

Kapi‘olani Community College

Sandra Maeda

Arnie Reyes

David Shiraki

Leeward Community College

Penny Uyehara

Grant Okamura

Horacio Rojas

University of Hawai‘i at Manoa

Complete paperwork at this webpage

University of Hawai‘i West O‘ahu

Stacey Sawa

James Yamaguchi

Windward Community College

Andy Li

Clifford Togo

IPV6 INFORMATION

The Telecom Group of UH Information Technology Services is responsible for system wide deployment of IPv6. Kapi'olani Community College has a switch to enable IPv6, but it has not been implemented across the UH System.

Information from UH ITS follows.

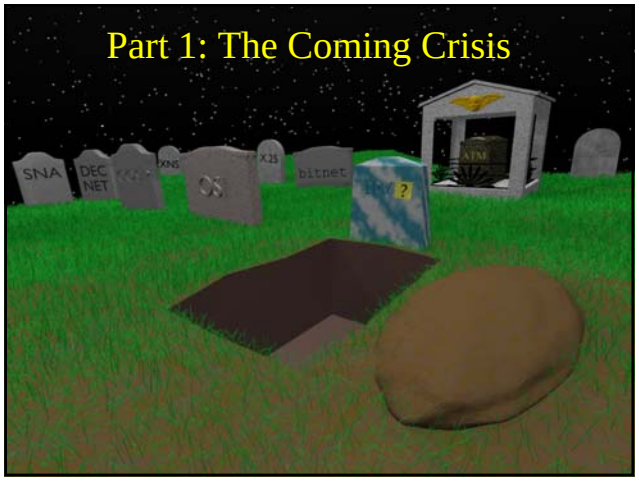
IP version 6 And You

Alan Whinery
U. Hawaii ITS
October 30, 2008

Prologue: Getting IPv6 Information

- There is much info on the Internet
- A large portion of it is not current
  - Things have changed, continually
  - A lot of it does not include a creation date
- When in doubt, a good starting point seems to be Wikipedia
- Practically all journalism about IPv6 is useless or inaccurate
- Trying to sort out details is like looking for your car keys after a flash-flood destroyed your house.
- (Today is the 4th anniversary of the 2004 UHM flash flood)

Part 1: The Coming Crisis



What Is IP?

- "IP" is the *Internet Protocol*
  - There are two operating versions
    - Version 4 (1981)
    - Version 6 (1998)
- IP entities have numeric IP addresses
  - 128.171.3.13, 168.105.211.22
  - 2607:f278:0:6:204:23ff:fe89:6238
- IP is the protocol that makes the Internet global
- Analogous to freight trains and container ships.

What Is “The Coming Crisis”?

- IPv4 address allocations expected to run out
- Addressing acquires new economy
- Global routing table will fill up
- Routers will be unable to keep up with changes
- (…)dogs and cats living together... mass hysteria!

Peter Venkman, Phd., Ghostbuster (copyright © 1984 Columbia Pictures Industries Inc. All rights reserved.)

Why a new IP?

- Address availability
- Route table size
- Security (IPSec et al)
- Less configuration
- Network Transparency

But wait, there’s *less*!

- Too Much Cookie Sharing
- IPSec was also developed for IPv4
- CIDR reduced address waste
  - Or rather stopped causing it
- Tech-pundits diss NAT, but Joe Plumber doesn’t care
- In the current climate, “transparency” sounds unlikely and creepy to many

Who’s In Charge Of Making Sure IPv6 Gets Deployed ?

- Well, nobody, actually
  - Which is also everybody
- The Internet is design by consensus
- There is leadership
  - Following is a personal choice
- equipment and software vendors cooperating more and more
  - No eating of own dog food occurring

IPv6 Drivers

- Japanese Government
- U.S. DoD, and etc.
- Research and Education Orgs
- Others

Edison Failed In The Phonograph Business

- Thomas Edison invented the phonograph in 1877
- For 3 decades, he improved and marketed the machine
- He pushed the technology in various ways and never seemed to realize that his competitors beat him not by selling phonographs,
- But by selling ***music***

"It is amazing how complete is the delusion that beauty is goodness."
- Tolstoy

- There are many smart people who believe that the better protocol will win out because it's better.
- They believe that "TRUTH", sound engineering and common sense will drive a global protocol exodus
- Betamax was better than VHS
- V6 needs advocacy more than it needs design to win the day.

the bit slide

- Digital devices, networks, etc. represent information with "bits"
- A bit is an evaluation of the presence or absence of something,
  - A light being on or off (i.e. in optical fiber)
  - An electrical charge or lack of it (DRAM memory)
  - A magnetic field's strength, strong or weak, or its direction, right or left (hard drives, etc.)
  - An area either reflecting a light or not (CDs, DVDs)

the nybble slide

Four bits have 16 possible combinations:

0000 = 0	1000 = 8
0001 = 1	1001 = 9
0010 = 2	1010 = 10
0011 = 3	1011 = 11
0100 = 4	1100 = 12
0101 = 5	1101 = 13
0110 = 6	1110 = 14
0111 = 7	1111 = 15

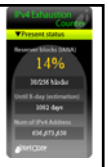
2^n

- Every time you add a bit, you double the number that can be represented.
- IPv4 addresses use 32 bits
  - 4,294,967,296
- IPv6 addresses use 128 bits
  340,282,366,920,938,000,000,000,000,000,000,000,000
  (give or take)
- Representations of bits are invented for ease of use, like:
  - 192.168.1.123
  - 2607:f278:0:6:230:48ff:fe71:31f1

If that address is so *numeric*, how come it has letters in it?

- consider 2607:f278:0:6:230:48ff:fe71:31f1
  - (a.k.a. http://net.its.hawaii.edu)
  - (a.k.a. 128.171.6.3)
- The number is represented in *hexadecimal* notation, otherwise known as base 16
- 0-9 are as you would expect, A-F (or a-f) represent decimal (regular numbers) 10 – 15
- Read http://en.wikipedia.org/wiki/Hexadecimal

Addressing



- According to the IPv4 "death clock" (my term)
  - http://inetcore.com/project/ipv4ec/index_en.html
  - The last of the IPv4 addresses will be allocated to address consumers
    - Sun Oct 16 2011
    - Give or take.
    - But nothing will probably happen until the following Monday, anyways.
- Of course, the estimated date will change, and allocation policy will shift as the un-allocated supply

Addressing (1)

- The global IPv4 address space, end-to-end, provides
  - 4,294,967,295 addresses
  - (4.3 billion)
  - including special use addresses
- A single "subnet" of IPv6 provides
  - 18,446,744,073,709,551,616 addresses
  - (18 billion billion)
  - Not including special use addresses

Addressing (2)

- What a huge waste! If we're running out of numbers now, why don't we allocate conservatively?
  - Because the failing of IPV4 addressing was that it was designed to be much too big for the projected Internet (1978), but made no provisions for the global Internet of 2008.
  - The extent to which the Internet would permeate everyday life wasn't even apparent in 1988, 10 years later.
  - Point: The original idea was to have so many addresses, it didn't matter; to assign enough addresses to each organization that they would not need more later.
  - We come from a shortage address economy. This is probably a good thing.

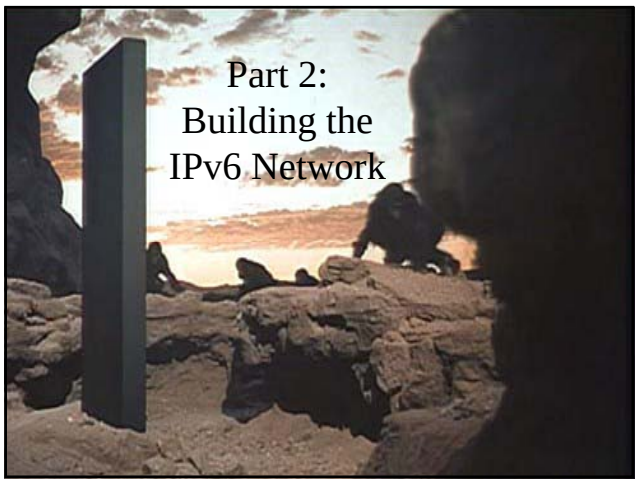
Address depletion

- Sometime between now and 3 years from now, all IPv4 addresses will be allocated.
- "Allocated" doesn't mean "used". There are many pools of addresses in the hands of various organizations which are unused.
- When the current sources of addresses are depleted, the value of the hidden supply will rise, and a market will form for trading in IPv4 addresses
- Also, address holders can continue to squeeze and re-organize their networks, to use a higher percentage of the addresses they hold
- Practically all existing networks use less than 50% of the numbers they hold. But saturation is increasing.

Address Explosion At ComCast

(Alain Durand, June 2006 NANOG)

- Comcast Cable serves 20 million customer households
- Comcast customers average 2.5 set-top-boxes per household, 2 IP addresses per box
- This is Cable TV, no Internet, no Voice services
- C.C. was assigning IP addresses from 10.0.0.0/8 to home cable boxes
- Until 2005 when they used up the last of the 16.8 million addresses in that block
- Primary address explosion driver is new service (voice/Internet) growth, secondary is Cable TV growth
- Resulting in the ideal application of IPv6 addresses



UH Net V4-V6 Transition

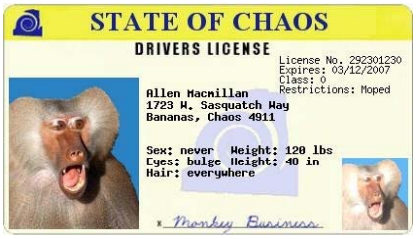
- Addresses come first (we have them)
- Routing and DNS come next.
  - IPv6 under DNS is…
    - "interesting"
- Then services
- UH ITS has allocated addresses for every facility on UH Net and is including the deployment of IPv6 in our daily work.
- If you need or want it, express an interest, and we will prioritize
- Currently there are IPv6 networks in Manoa and Honolulu CC. Maui CC is next.

Not All Sweet Sweet Candy

- Experience has shown that deploying a second IP protocol alongside the first needs to occur smoothly, with sharp eye and open mind
- There will still be show-stoppers in router capabilites, etc. but they will be overcome presently.

What can I reach with IPv6?

- You just have to know where to look.
- These tend to work:
  - http://ipv6.google.com
  - http://www.ietf.org
  - http://www.twaren.net/ ftp://ftp.twaren.net/
- tunnelbroker.net
- At UH: http://net.its.hawaii.edu

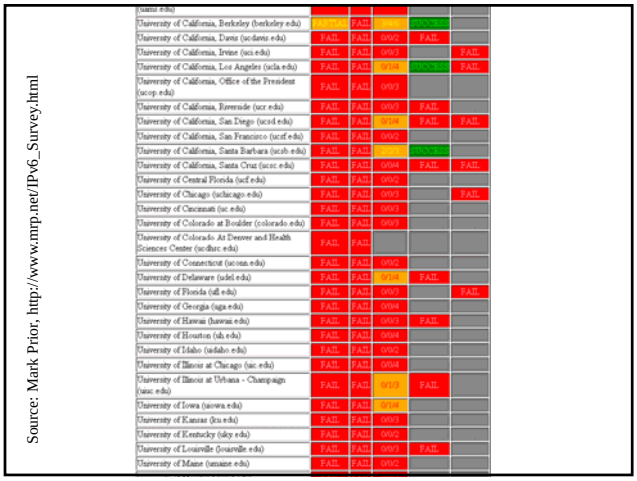


Part 3: State Of Implementations

IPv6 Implementations

- Cisco, Juniper, Foundry, 3Com, etc.
- Apple, Microsoft, IBM, Linuxes, BSDs, etc.
- Sun, SGI, Trumpet Winsock (yes, Trumpet Winsock), etc.
- Infoblox, Netscreen, Checkpoint, Nokia, etc.
- There are many prolific players in the marketplace.

Source: Ron Broersma, DoD/DREN



Source: Mark Prior, http://www.mrp.net/IPv6_Survey.html

Source: Mark Prior, http://www.mrp.net/IPv6_Survey.html

Standards Bodies

Organisation (domain)	Web	Mail	DNS	NTP	XMPP
AEEMA (aeema.asn.au)	FAIL	FAIL	0/0/2		
AfriNIC (afrinic.net)	SUCCESS	FAIL	0/2/6		
APNIC (apnic.net)	SUCCESS	FAIL	0/0/5	SUCCESS	
ARIN (arin.net)	PARTIAL	SUCCESS	1/1/1		FAIL
AUDA (auda.org.au)	FAIL	FAIL	0/0/2		
AusRegistry (ausregistry.com.au)	FAIL	FAIL	0/0/4		
ICANN (icann.org)	SUCCESS	FAIL	0/2/6	FAIL	
IEEE (ieee.org)	FAIL	FAIL	0/0/8		
IETF (ietf.org)	SUCCESS	SUCCESS	1/6/6		
IPv6 Forum (ipv6forum.com)	SUCCESS	SUCCESS	0/2/2		
IPv6 Forum Downunder (ipv6forum.org.au)	SUCCESS	FAIL	0/1/4		
IPv6 TF (ipv6tf.org)	SUCCESS	SUCCESS	0/3/3		
ISOC AU (isoc-au.org.au)	SUCCESS	FAIL	0/1/4		
ITU (itu.int)	FAIL	FAIL	0/0/3	FAIL	
LACNIC (lacnic.net)	PARTIAL	SUCCESS	1/1/1		
RIPE (ripe.net)	FAIL	FAIL	1/1/1		

Trying Out Your IPv6

- It's hard to know whether you are using it.
  - **ShowIP** add-on for Firefox helps

- It's hard to know whether the old program has been updated, or a new one was added.
- Most common OS implementations lack something

Stateless Auto-configuration (SLAAC)

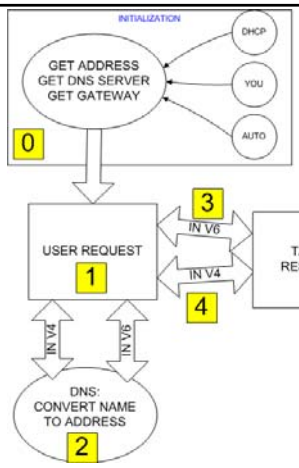
- Many operating systems have IPv6 turned on by default
- With SLAAC, if your router interface is using v6, then you are too. You may use v6 without realizing it
- Your machine determines your IPv6 address, and adds it to the prefix advertised by the router
- Some OS build the RH 64 bits using the MAC address
- Others will make up random (currently only Vista)

EUI-64 Address Assembly

- consider 2607:f278:0:6:230:48ff:fe71:31f1/64
- One character is equivalent to 4 binary bits
- The "/64" refers to how many bits are determined by the network
- Since there are a total of 128 bits in an IPv4 address, that leaves 64 for the host to determine
- The University Of Hawaii System's IPv6 address allocation is:
  - 2607:F278::/32
  - The host's MAC address is: 00:30:48:71:31:F1, which gets a FFFE insterted in the middle, completing the RH 64 bits

Getting a DNS Server address

- Stateless auto-configuration gets you an address and gateway
- But no DNS server
- Of course, if you have DNS through IPv4, you will learn v6 addresses through that DNS server
- Currently, the only way for a v6-only host to auto-learn the name server address is DHCPv6
- Attachments to SLAAC are proposed
  - RFC 5006 (IPv6 Router Advertisement Option for DNS)



IP Host Function

In order to reach the "Basic Functionality" milestone, each computer on the network Will need to provide certain services to the user's applications. Currently, Windows Vista is closest to the Goal. Mac OS can use Extra software, and Windows XP will be abandoned. Popular Linux/Unixes are already well-equipped for the IPv6 Internet.

IPv6: Apple OSX 10.5

- On by default
- Missing DHCP6
  - Dead set against it, apparently

Apple OS X Applications

- Firefox – should browse IPv6, but didn't
- Safari – does browse IPv6
- ping – works with separate "ping6"
- traceroute – works with separate "traceroute6"
- SSH client – works
- telnet – works to router: fe80::209:7bff:fedc:400%en0
- email – no server to test to yet

IPv6: Windows XP (SP2+)

- You can add it to an interface with the inerfaces “Properties” pane, just like IP(v4) or IPX/SPX or NetBIOS
- Once added, there is no GUI config, although some things can be accomplished with the command line
- Will not do DNS queries in IPv6 packets
- Will receive IPv6 info from DNS in IPv4 packets
- Is Ultimately doomed.

Windows XP Applications

- Firefox – will browse IPv6
- IE7 – will browse IPv6
- ping – works
  - Tries first address as returned by DNS
- tracert – works
  - Tries first address as returned by DNS
- Telnet – doesn’t appear to work
- Thunderbird – no server to test to yet

IPv6: Windows Vista

- On by default
- Does DHCP6
- Implementation currently more complete than XP or Mac OS X

Windows Vista Applications

- Firefox – will browse IPv6
- IE7 – will browse IPv6
- ping – works
  - Tries first address as returned by DNS
- tracert – works
  - Tries first address as returned by DNS
- Telnet – doesn’t appear to work
- Thunderbird – no server to test to yet

IPv6: Ubuntu 8

- On by default
- Does DHCP6, if you install it
- Since Linux (and BSD OS) are typically used for reference implementations, support is pretty good

Ubuntu Linux Applications

- Firefox – will browse IPv6
- ping – works as "ping6"
- traceroute – works as "traceroute6"
- Telnet – doesn't appear to work

- ***Linux is a kernel***.
  - Linux *distributions* are operating systems. They differ as to what apps they provide for various roles.
  - "Distributions" means, Red Hat, Ubuntu, Suse, Debian, Slackware, etc.

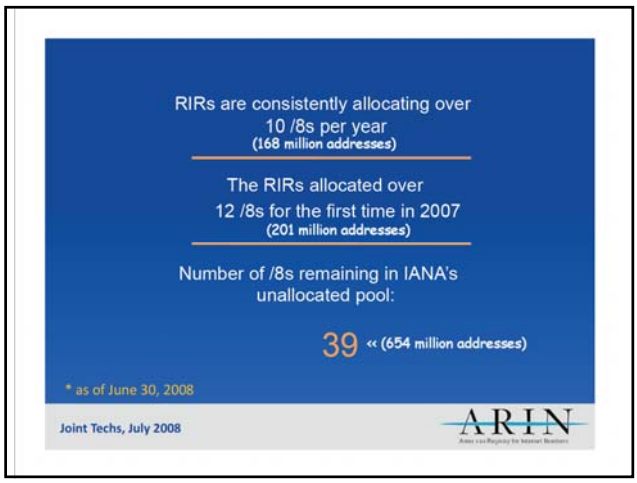
The AAAA/A Turnaround Test

Load a page from a host with an AAAA record, but with the IPv6 interface address deleted on the http server. How long will it take?

- Windows XP SP2 – 22.9 Sec.
- Mac OSX (10.5.3) - 15.3 Sec.
  - Firefox didn't work; used Safari
- Windows Vista - (shorter)
- Ubuntu HH Linux 2.6.24 - 3.0 Sec.

(IP version 5 was assigned to the Internet Stream Protocol, which was proposed as a peer, not a replacement to IPv4. The Internet Stream Protocol is not in use today.)

Journalists, the uninformed, dogs, and children have made up several stories about how version 5 was mistakenly or accidentally assigned, when nobody was looking. None of them are true.


RIRs are consistently allocating over
10 /8s per year
(168 million addresses)
The RIRs allocated over
12 /8s for the first time in 2007
(201 million addresses)
Number of /8s remaining in IANA's
unallocated pool:
39 << (654 million addresses)
* as of June 30, 2008
Joint Techs, July 2008
ARIN

IPV6 and You

(Being a collection of notes about the IPv6)

Slides from Alan Whinery's 10/30/08 *IPV6 and You* Brown Bags talk are here.

The UH IPV6 Deployment Mailing List

A LISTSERV list for UH System staff who are involved or interested in IPv6 deployment in UHNet. Information and Archive is here.

State Of Deployment

The University Of Hawaii has obtained a block of addresses from ARIN, as of December 2007.

An addressing plan has been worked out, and addresses have been assigned to UH Net facilities.

In January the last network devices will be upgraded to make IPv6 available to all campuss throughout the State. If your campus or facility wishes to expedite the deployment of IPv6 to your site, please email networks@hawaii.edu.

HTTP Sites you can reach using IPv6

State Of Implementations

Pretty much all popular operationg systems support IPv6 to some extent.

End-User Operating Systems

- Windows XP comes with IPv6, but you have to turn it on yourself.
  - Microsoft's IPv6 FAQ
- Windows Vista comes with IPv6, and it is enabled by default
  - Microsoft's IPv6 FAQ
- Mac OS X comes with IPv6, and it is enabled by default
  - Apple's exclusion of DHCP support may cause need for additional software.
- All recent general-purpose Linux distributions support IPv6
  - *Linux*, per se, is not an operating system. Linux is a kernel. Linux *distributions* are operating system implementations based on the Linux kernl.
  - Linux IPv6 FAQ
- All recent general-purpose BSD distributions support IPv6
- Sun Solaris and OpenSolaris support IPv6
- Windows 2000 did have an add-on experimental version of IPv6, but it is now too out-dated to use
- Windows NT,95,98,Me Did not support IPv6
- Mac OS 9 and earlier did not support IPv6
- Until recently, Tattam Software provided a version of Trumpet Winsock which supported IPv6 in Windows, but it has mysteriously disappeared from the Tattam site.

Miscellaneous Interesting Links

IP Subnet Calculator for IPv4 and IPv6 (Mac OS X)
Open Contributors Corporation for Advanced Internet Development (OCCAID)

Last modified: December 16 2008 12:28:37.

INFORMATION ON THE FUTURE OF BROADBAND IN HAWAIʻI

The state government has committed to enhancing broadband services throughout Hawaiʻi and funding was allocated to this effort in September 2010. Implementation plans are in development. For more information refer to:

- Creating Hawaiʻi's Broadband Future
- Broadband in Hawaiʻi
- House Bill 2698 CD1 A Bill for an Act Relating to Technology

Plans are still in development so specific information related to implementation is not yet available.

Creating Hawai‘i’s Broadband Future

By David Lassner, PhD

Imagine high-definition interactive videoconferencing enabling you to participate in business meetings from home so you can avoid traffic and reduce your carbon footprint. Imagine your father consulting from home with his physician about early-onset Alzheimer’s, with the physician able to see confusion on his face. Imagine your son uploading the high-definition video he just finished editing to submit his high school graduation capstone project. Imagine your daughter remotely operating an instructional telescope located at the top of Mauna Kea while viewing images of the data that are produced using a supercomputer on Maui.

Imagine these things going on in your home — all at once — over a high-speed broadband connection.

In Japan, Hong Kong, Sweden and France, Internet access at speeds of 100 million bits per second (Megabits or Mbps) are available to residents for about $30 per month, or even less. That’s 20 times faster than an average broadband connection in the United States and 6 times faster than the highest speed consumer service currently available in Hawai‘i.

And other countries aren’t standing still while the U.S. struggles to catch up. Late last year KDDI announced the rollout of residential Internet access in Japan at 1 billion bits per second (Gigabits or Gbps) for about $60 per month. Earlier this year the Korea Communications Commission announced plans to bring 1 Gbps service to Korean households by 2012. Last month a leading Hong Kong provider announced 100Mbps service for a new low price of $16/month.

Hawai‘i and U.S. No Longer Competitive

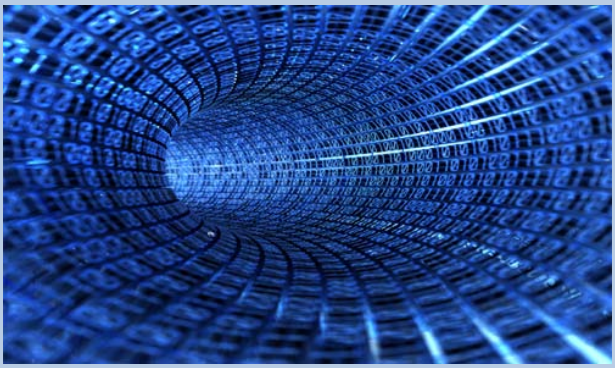
Meanwhile, the United States has dropped dramatically on the international broadband scoreboard when considering any of broadband penetration, speed and/or pricing. Bringing this story home, Hawai‘i is routinely ranked near the bottom of the states in the effective speed of our Internet connections. The U.S. used to be the clear international leader, and Internet access everywhere relies on a key innovation (the Aloha protocol) that was developed at the University of Hawai‘i (UH) during the 1970s. UH also implemented the very first Internet connections to Japan, Korea, Australia and New Zealand back in the early days when only universities and research labs had access, yet UH is now one of the only major research universities in the country without a dark fiber optic connection to the rest of the nation.

Estimated Economic Impact $500M/Year

The 2007 Legislature established a Broadband Task Force with a mix of public and private sector members to consider what action might be

appropriate in Hawai'i, if any. The Task Force first asked whether broadband really matters to Hawai'i and answered with a resounding "yes." We found that transformational improvements in health care, education, public safety, entertainment, economic development and civic engagement would all be empowered through high-speed broadband.

What is broadband?



The term *broadband* commonly refers to high-speed Internet access. The FCC defines broadband service as data transmission speeds exceeding 200 kilobits per second (Kbps), or 200,000 bits per second, in at least one (downstream or upstream) direction.

Broadband service provides higher speed of data transmission allowing more content to be carried through the transmission "pipeline." Broadband transmission technologies include digital subscriber line–DSL; cable modem; fiber; wireless; satellite; and broadband over powerlines–BPL.

As a Task Force, we agreed that broadband has emerged as a critical infrastructure need in order for our entire state to thrive and prosper in the 21st century. One study estimated a positive economic impact to Hawai'i of over $500 million per year that would be obtained through improved broadband capabilities.

The Hawai'i Broadband Task Force found that other countries have leapfrogged the United States through intentional public policy. Other advanced nations view broadband as infrastructure to be used and to be accessed by all citizens, and have taken strong actions to improve the availability and speed of the services available in support of their national social and economic development. Though they've taken different roads to get there — using varying approaches to regulation, differing models of deploying infrastructure and their own models for public investment — they all began with the vision of broadband as critical infrastructure and public commitment to the vision. In contrast, over the past decade the U.S. has taken a fairly *laissez faire* approach to broadband, relying primarily on private investment and competitive forces to fund and deploy advanced infrastructure and services.

Visionary Policies Required

As with our nation as a whole, Hawai'i has no vision for broadband in public policy. And while we have many offices at the State and County levels with roles in regulation, franchising, permitting and oversight of the companies that provide services, there is no office or public official in Hawai'i with a mission to advance Hawai'i's broadband capability for all our communities on all our islands.

The Hawai'i Broadband Task Force presented our final report to the Legislature and Governor at the end of last year. The full report is available at: http://www.hbtf.org. While there are many views as to the right role for public sector engagement and exactly how to finance and build world-class infrastructure and services, there was no disagreement on the two primary recommendations.

First, the Task Force agreed that Hawai'i should embrace a bold vision that its citizenry enjoy services and prices comparable to those in the leading nations of the world.

Second, in light of severe financial constraints, the State of Hawai'i should perform a revenue-neutral integration of existing disparate but related oversight functions into a single office with responsibility to ensure streamlining of procedures and permitting, broadband advocacy, and overall leadership for achieving Hawai'i's vision of world-class infrastructure and services. The Task Force believed that without leadership, the vision alone would be a hollow statement.

Need for Legislative Action in 2010

These key recommendations of the Task Force were embraced by the Lingle Administration, the Senate Majority, the House Majority and the House Minority. Multiple bills to establish a bold vision for the State and to realign existing resources to create a new Hawai'i Communications Commission were introduced (and passed both chambers) during the 2009 Legislative Session. But the 2009 Legislature did not come to conclusion on a final bill that they could pass and send to the Governor for signature. In accord with the 2007 legislation that established it, the Hawai'i Broadband Task Force sunset out of existence June 30, 2009.

In the meantime, the new Obama administration has embraced the importance of broadband for the nation as a whole. The American Recovery and Reinvestment Act of 2009 (ARRA) contained three important provisions regarding broadband:

1) The ARRA established a new grant program for state-based data collection efforts to implement the Broadband Data Improvement Act of 2008. If successful, this will provide better data than we have ever had before about the actual state of broadband in Hawai'i and across the nation.

2) The ARRA appropriated some $7.2 billion to be allocated nationally for broadband infrastructure and services through new grant and loan programs in the Department of Commerce and Department of Agriculture.

3) And perhaps most importantly for the long term, the ARRA charged the Federal Communications Commission (FCC) to create our nation's first national broadband strategy, with the plan due to Congress early next year.

While Hawai'i could have been poised for national leadership, we can still position our-selves well to participate in the changes afoot in Washington, D.C. Proposals were submitted for a Hawai'i broadband mapping program and to access ARRA funds for broadband infrastructure and services. It is clear that we have a strong bipartisan consensus that broadband is critical infrastructure for Hawai'i's future and we have basic agreement about some first steps that are necessary for the State to begin to move forward. At least one legislative vehicle is still alive in Conference for the 2010 Legislature to consider and pass if the House and Senate can come to agreement. Or, of course, new bills could be introduced to allow other approaches to advance.

While there are many ways our progress can be derailed, we have a real opportunity to take advantage of our consensus and begin to chart a more detailed course toward world-class broadband services for all our citizenry. Hawai'i deserves no less.

David Lassner, Vice President of Information Technology and Chief Information Officer for the University of Hawai'i, served as Chair of the Hawai'i Broadband Task Force.

President Barack Obama's home state of Hawaii was ranked 49th in broadband speeds among the country's 50 states by *PC Magazine*. The state's median surf speed is 1.68 megabits per second (mbps), which can't compare to Japanese broadband speeds of about 63.6 mbps — more than 30 times faster than Hawaii.

In addition to its unenviable broadband position, Hawaii's average in mathematics, reading, science and writing on the National Assessment of Educational Progress has been habitually below the national average. Broadband access could enhance outcomes for Hawaii students. The state's decision-makers are realizing that they need to create more opportunities to engage students.

In 2007, the Hawaii Broadband Taskforce was created in order to make broadband Internet service more available and affordable in the state. The 14-member group consists of Senate and House members; federal, state and county entities; and private sector representatives. Its responsibilities include:
removing barriers to broadband access;
identifying opportunities for increased broadband development and adoption; and
enabling the creation and development of new, advanced communication technologies in Hawaii.
At the end of 2008, the taskforce presented a final report to the Legislature. Its recommendations were expected to lay the framework for retooling the state's infrastructure in order to keep pace with a growing demand for high bandwidth.

The proposed legislation calls for the establishment of a Hawaiian communications commission that would be a combination regulatory agency and consumer-industry advocate. The proposal would help drag Hawaii out of the United States' broadband cellar. It would also provide the steps necessary to change Hawaii's economy from a travel- and tourism-based market to a knowledge-based financial market.

"Because we are so far from the rest of the continental United States," said Hawaii Sen. Carol Fukunaga, "high-speed broadband is really one of the things that would really kind of tie us in with the rest of the country as well as promote a lot more economic diversification."

Source: www.speedmatters.org, Information Technology and Innovation Foundation

With the introduction of accelerated broadband, Hawaii could see a total economic stimulus of $578 million a year, including the addition of 10,284 jobs, according to a February 2008 report from Connected Nation, a District of Columbia-based technology advocacy and research group.

In January 2009, two broadband bills based on the taskforce's suggestions were introduced by the State Administration, Senate Majority, House Majority and House Minority. The legislation intended to provide access to broadband communications for all Hawaiians by 2012, at speeds and prices comparable to the top three performing countries in the world. In April, the bills were deferred.

Sen. Fukunaga said that wireless providers, cable companies and local carriers were concerned that they would be adversely affected by the telecom and cable regulations.

"Basically," she said, "they just saw the specter of something more in the future and they kind of just wanted to wait and to ensure that

they wouldn't lose their own competitive advantages."

From this point, Sen. Fukunaga said, the bill can be re-introduced next year, or a new version of the broadband bill could be presented. If passed, she said, Hawaii would be able to build up industries such as life sciences and creative media as well as harness renewable and alternative energies.

"Having high-speed broadband access," she said, "would dramatically increase our ability to grow these sectors of the economy."

Special thanks to Jeff Piontek, who contributed to this article.

***This story is from *Converge* magazine's Summer 2009** issue.

Find this article at:
http://www.convergemag.com/edtech/Broadband-Hawaii.html

HOUSE OF REPRESENTATIVES
TWENTY-FIFTH LEGISLATURE, 2010
STATE OF HAWAII

H.B. NO. 2698 H.D. 2 S.D. 2 C.D. 1

A BILL FOR AN ACT

RELATING TO TECHNOLOGY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. (a) Through Act 2, First Special Session Laws of Hawaii 2007, the legislature created the Hawaii broadband task force to provide recommendations on how to advance Hawaii's broadband capabilities and use. The legislature finds that advanced broadband services are essential infrastructure for an innovation economy and a knowledge society in the twenty-first century. High-speed broadband services at affordable prices are essential for the advancement of education, health, public safety, research and innovation, civic participation, e-government, economic development and diversification, and public safety and services. The legislature also recognizes the evolution in the manner in which communications and information services are delivered to the consumer, including by wireline, wireless, cable television, and satellite infrastructures, and that the voice, video, and data services provided over these infrastructures are converging.

Meeting the following goals is critical for Hawaii to compete successfully in the global economy of the twenty-first century:

(1) Ensure access to broadband communications for all households, businesses, and organizations throughout Hawaii by 2012 at speeds and prices comparable to the average speeds and prices available in the top three performing countries in the world;

(2) Increase availability of advanced broadband communications service on a competitive basis to reduce prices, increase service penetration, and improve service to all persons in Hawaii;

(3) Increase broadband availability at affordable costs to low-income and other disadvantaged groups,

including making low-cost, broadband-capable computers available to eligible recipients;

(4) Increase sharing of the infrastructure used to deploy broadband to speed up implementation, reduce costs to providers, reduce underlying costs to providers through incentives rather than eminent domain procedures, ease deployment of broadband, and ease entry into a competitive broadband marketplace;

(5) Increase flexible, timely, and responsible access to public rights-of-way and public facilities for broadband service providers; and

(6) Develop a more streamlined permit approval process that reduces the time and cost of infrastructure deployment, to be created jointly by disparate permitting agencies, stakeholders, and other interested parties.

(b) The purpose of this Act is to begin implementation of activities to achieve these goals by:

(1) Adding the functions of telework promotion and broadband assistance to the department of commerce and consumer affairs' responsibilities over cable programming under chapter 440G, Hawaii Revised Statutes;

(2) Appropriating moneys from the compliance resolution fund for fiscal year 2010-2011 to fund telework and broadband activities;

(3) Establishing a telework promotion and broadband assistance advisory council to meet the goals of expanded broadband and its products and services in the State of Hawaii;

(4) Establishing a work group to develop procedures for streamlined permitting functions applicable to the development of broadband services or technology; and

(5) Requiring the department of commerce and consumer affairs to report annually to the legislature on all expenditures of federal moneys received pursuant to the American Recovery and Reinvestment Act of 2009 or other federal funds, for purchasing broadband facilities, services, or equipment, or entering into contracts for broadband-related projects.

SECTION 2. Chapter 440G, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"**§440G- Other duties of the director; broadband services.** In conjunction with broadband services, the director shall:

(1) Promote and encourage use of telework alternatives for public and private employees, including appropriate policy and legislative initiatives;

(2) Advise and assist state agencies, and upon request of the counties, advise and assist the counties, in planning, developing, and administering programs, projects, plans, policies, and other activities to promote telecommuting by employees of state and county agencies;

(3) Support the efforts of both public and private entities in Hawaii to enhance or facilitate the deployment of, and access to, competitively priced, advanced electronic communications services, including broadband and its products and services and Internet access services of general application throughout Hawaii;

(4) Make recommendations to establish affordable, accessible broadband services to unserved and underserved areas of Hawaii and monitor advancements in communications that will facilitate this goal;

(5) Advocate for, and facilitate the development and deployment of, expanded broadband applications, programs, and services, including telework, telemedicine, and e-learning, that will bolster the usage of and demand for broadband level telecommunications;

(6) Serve as a broadband information and applications clearinghouse for the state and a coordination point for federal American Recovery and Reinvestment Act of 2009 broadband-related services and programs; and

(7) Promote, advocate, and facilitate the implementation of the findings and recommendations of the Hawaii broadband task force established by Act 2, First Special Session Laws of Hawaii 2007.

The director shall submit an annual report to the legislature, no later than twenty days prior to the convening of each regular session, on the department's efforts to use broadband and its products and services to develop and expand telework initiatives, including telework participation levels and trends of both private and public sector employees in Hawaii.

Pursuant to chapter 440G-12(d), the director may appoint and employ engineers, accountants, attorneys, and professional, clerical, stenographic, or other assistants, as required, with or without regard to chapter 76."

SECTION 3. **Telework promotion and broadband assistance advisory council; establishment; purpose.** (a) The administrator of the cable television division of the department of commerce and consumer affairs shall convene and chair the broadband assistance advisory council to advise the administrator on policy and funding priorities to promote and encourage use of telework alternatives for public and private employees, and expedite deployment of affordable and accessible broadband services in Hawaii.

(b) The council shall be composed of the administrator of the cable television division and the following twelve members who shall be equally appointed by the president of the senate and by the speaker of the house of representatives as follows:

(1) Two members of the senate, appointed by the president of the senate;

(2) Two members of the house of representatives, appointed by the speaker of the house of representatives;

(3) Four representatives of federal, state, and county government entities having a role in infrastructure deployment; management of public rights-of-way, regulation, and franchising; information technology; and economic development; and

(4) Four representatives of Hawaii's private sector technology, telecommunications, and investment industries.

Except for the administrator of the cable television division, all members shall serve for a term of four years. Any vacancies occurring in the membership of the advisory council shall be filled for the remainder of the unexpired term in the same manner as the original appointments.

(c) The administrator of the cable television division shall serve as chairperson of the council. The council shall meet at times as may be called by the chairperson. Members shall be reimbursed for reasonable expenses, including travel expenses, necessary for the performance of their duties. Administrative support to the council shall be provided by the department of commerce and consumer affairs.

(d) The council shall:

(1) Monitor the broadband-based development efforts of other states and nations in areas such as business, education, and health;

(2) Advise the department on other states' best practices involving telework promotion and policies and strategies related to making affordable broadband services available to every Hawaii home and business;

(3) Monitor broadband-related activities at the federal level;

(4) Monitor regulatory and policy changes for potential impact on broadband deployment and sustainability in Hawaii; and

(5) Encourage public-private partnerships to increase the deployment and adoption of broadband services and applications.

SECTION 4. **Work group; establishment; reporting.** (a) The administrator of the cable television division of the department of commerce and consumer affairs shall convene a work group to develop procedures for streamlined permitting functions that are applicable to the development of broadband services and broadband technology that are normally available to state and local governments for the use or

development of broadband service or broadband technology. Members of the work group shall include:

(1) The administrator of the cable television division, or the administrator's designee;

(2) The mayor of the county of Hawaii, or the mayor's designee;

(3) The mayor of the city and county of Honolulu, or the mayor's designee;

(4) The mayor of the county of Kauai, or the mayor's designee;

(5) The mayor of the county of Maui, or the mayor's designee;

(6) The chairperson of the Hawaii broadband task force established by Act 2, First Special Session Laws of Hawaii 2007; and

(7) Two representatives of state agencies with jurisdiction over land use and permitting at the state level.

(b) The work group shall submit to the legislature, no later than January 1, 2011, a report with its recommended procedures for streamlining and expediting all permitting functions normally available to state and local governments for the use or development of broadband service or broadband technology. The procedures shall be consistent across all counties and shall provide that any permitting fees and revenues traditionally accruing to the counties that relate to the use or development of broadband service or broadband technology shall continue to accrue to the counties after the procedures go into effect.

SECTION 5. The department of commerce and consumer affairs shall report annually to the legislature, no later than twenty days prior to the convening of each regular session, on the receipt and expenditure of federal moneys from the American Recovery and Reinvestment Act of 2009, and moneys from other federal appropriation measures or applicable federal acts, for the purposes of purchasing broadband facilities, services, or equipment or for entering into contracts for broadband-related projects by all state agencies for all state agencies approval.

SECTION 6. There is appropriated out of the compliance resolution fund subaccount CCA102, established under section 26-9(o), Hawaii Revised

Statutes, the sum of $500,000 or so much thereof as may be necessary for fiscal year 2010-2011 to be used for the purposes of Section 2 of this Act.

The sum appropriated shall be expended by the department of commerce and consumer affairs for the purposes of this Act.

SECTION 7. New statutory material is underscored.

SECTION 8. This Act shall take effect on July 1, 2010.

Report Title:
Technology; Telework Promotion and Broadband Assistance; Advisory Council; Federal Moneys

Description:
Requires the Director of DCCA to promote and encourage telework in conjunction with broadband services and appropriates moneys from the Compliance Resolution Fund for these activities; Establishes a Telework Promotion and Broadband Assistance Advisory Council; Establishes a work group to develop streamlined permitting procedures for development of broadband services or technology; Requires DCCA to report annually to the Legislature on expenditures of federal moneys for broadband facilities, services, equipment, or contracts. (HB2698 CD1)

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

INFORMATION ON THE GOOGLE@UH PROJECT

The following is a quote from https://www.hawaii.edu/google/news.html

> *UH is currently beta testing Google Apps for Education for "@hawaii.edu" email. Based on our initial experience and that of other colleges and universities, ITS is recommending that Google@UH replace the current legacy email environment since it provides a vastly superior service with a substantial cost savings (free) in what is a particularly challenging budgetary environment. ITS has also noted that thousands of current @hawaii.edu email users already forward their email to Google's Gmail service, and these individuals can immediately benefit from the improved integration offered by Google@UH. In addition to new services such as a personal calendar that can synch with a mobile device and Google Docs for collaboration, Google@UH will offer a dynamic path of enhancements and service improvements that UH is unlikely to be able to invest in.*
> *There is no current plan or directive for a mandatory migration of all @hawaii.edu users to Google@UH. ITS will be consulting on this with all 10 UH Campus Faculty Senates, as requested by the All Campus Council of Faculty Senate Chairs.*
> *A list of Google@UH FAQs is accessible here.*

An update on the status of the Google@UH project was disseminated by UHITS on 11/22/10 and is on the following page.

From: owner-uhitc-l@lists.hawaii.edu on behalf of Osamu Makiguchi
To: uhitc-l@lists.hawaii.edu
Subject: Google@UH Project Clarification
Date: Monday, November 22, 2010 5:00:55 PM

Technology Coordinators:

I would like to clarify the status of the Google@UH project. Information Technology Services (ITS) has indeed created a service that allows individual @hawaii.edu email users to migrate to the Google Apps for Education environment. You can learn more about the beta testing at http://www.hawaii.edu/google/.

We are recommending that Google@UH replace the current legacy email environment since it provides a vastly superior service with a substantial cost savings (free) in what is a particularly challenging budgetary environment. We have also noted that thousands of current @hawaii.edu email users already forward their email to Google's Gmail service, and these individuals can immediately benefit from the improved integration offered by Google@UH.

However, there is no current plan or directive for a mandatory migration of all @hawaii.edu users to Google@UH. We will be consulting on this with all 10 UH Campus Faculty Senates, as requested by the All Campus Council of Faculty Senate Chairs.

Osamu Makiguchi
Information Technology Services

Related URLs:

UH Google@UH Information: http://www.hawaii.edu/google
Google Apps for Education: http://www.google.com/a/help/intl/en/edu/university.html