

The Status of

S W A P

Ship-to-Ship/Shore Wireless Access Protocol

Wireless Mesh Networking in the UNOLS Fleet

Presented at RVTEC 2007

This presentation can be found at

<http://www.shipops.oregonstate.edu/martech/swap/presentation/2007.rvtec/>

Last Modified: 31 Oct 2007 by Toby Martin

S W A P

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And all those I left off.

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What Happened in 2007 (and before)?

SWAP 1

- Expansion on Ships: not much.
- Expansion on Shore:
 - Martha's Vinyard
 - WHOI Shuttle Van
 - Lower Columbia River
 - Delaware (see U Del presentation)
 - Yaquina Head

SWAP 2

- Agree on direction
- Initial deployment
- Codeswap

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Why Change SWAP?

- Development on the Pebble distribution has been discontinued.
 - SWAP 1 still has multiple node routing issues.
 - Needed to change the addressing scheme.
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SWAP 1 versus SWAP 2

Topic	SWAP 1	SWAP 2
distribution	pebble	pyramid
configuration	initialization script	web page
routing	OSPF	OLSR
IP addressess per radio	multiple, undeterministic	single
hardware	prism 2+ radio chipsets	multiple chipsets

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SWAP User Goals

- service stability: routing, relaying, auto detection, no tech required
 - easy install
 - easy configuration: web interface, name2ip
 - after install & config, no messing about - it just works
 - Internet access to a ship or buoy
 - easy port forwarding (network sensors, VoIP, telecommute, ...)
 - provide for shore-side relay chains
 - access via standard wifi
 - security: WEP, WAP, whatever
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SWAP Technical Needs

- maintain development on an active distribution
 - run on current hardware
 - run on future hardware
 - collapse addressing to a single IP address per node
 - mix static (relays) and dynamic (ships) routing
 - remove some NAT layers to facilitate services: forwarding, VoIP, http, rsync, video conferencing, ssh, SMB, uucp, netnews, ...
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Swap - Where

SWAP Locations

Organization	Fixed Nodes	Mobile Nodes
SWAP 1		
U of Hawaii	UH Marine Center	R/V Kilo Moana
Scripps Institute of Oceanography	Nimitz Marine Facility	R/V Revelle, R/V Melville, R/V New Horizon, R/V Sproul
Oregon State University	Hatfield Marine Science Center, Southbeach, Yaquina Head	R/V Wecoma, R/V Elakha, loaner
U of Washington	Dock	R/V Thompson, R/V Barnes
MBARI	???	R/V Western Flyer
Moss Landing	???	R/V Point Sur
U of Delaware	Ops building, Cape Henlopen Pilot Tower, Buoy A, Buoy B	R/V Cape Henlopen
Center for Coastal Margin Observation & Prediction	Merts Campus, Tongue Point, Cape Dissapointment	R/V Forerunner
SWAP 2		
Woods Hole Institute of Oceanography	Martha's Vinyard, Dock, Clark Build	R/V Tioga, R/V Oceanus, R/V Knorr, R/V Atlantis, Shuttle Van

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Swap 2007 Timeline

- early: WHOI implements subset of SWAP2
 - [March: CodeSWAP at WHOI](#)
 - Sept: WorkSWAP at CMOP
 - ??? Jan 2008 ??? : next CodeSWAP a CMOP ???
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<http://pigeon.shipops.orst.edu/swap/inmartech2004>

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SWAP Funding

Funding for the development and installation of SWAP is provided by the National Science Foundation



National Science Foundation
WHERE DISCOVERIES BEGIN

Integrative Programs Section

<http://pigeon.shipops.orst.edu/swap/inmartech2004>

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SWAP Pictures

- [CodeSWAP at WHOI](#)
 - [Yaquina Head, Oregon](#)
 - [South Beach, Oregon](#)
 - [WHOI Coverage](#) from http://sssg1.who.edu/who_swap/pic.html
 - [CMOP Coverage](#) from <http://www.ccalmr.ogi.edu/CORIE/cruises/sigiso.html>
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<http://pigeon.shipops.orst.edu/swap/inmartech2004>

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