

Extend your communication networks underwater

The software-defined framework for underwater communication and networking. Simulate on the desk, then deploy at sea.

1**SIMULATE****UnetSim**

Design protocols and networks on your desk. No hardware.

2**TEST****UnetCloud**

Run the real stack on hosted modem-grade nodes in a virtual ocean.

3**DEPLOY****UnetCube, Modems**

Build your own modem around UnetCube or go to sea with Subnero modems.

**SIMULATE, THEN DEPLOY**

Desk results predict sea results

OPEN APIs

Java, Groovy, Python, Julia, C, JavaScript

FULL NETWORK STACK

Routing, MAC, transport, management and more

ANY LINK

Acoustic, optical, and radio links

WHO UNETSTACK IS FOR

One framework, four kinds of users

Different users need different things from underwater communication. UnetStack opens every layer of the stack, so each can shape it to their mission.

Acoustic communication research

Access raw signals. Transmit arbitrary waveforms, run your own code inside the modem, and replace any layer of the stack.

Underwater networks

More than a link. Routing, MAC, transport, and remote management, from a two-node link to an area-wide network for end-to-end connectivity.



Marine robotics

Reliable communication for marine vehicles. Dynamic TDMA, adaptive routing, and content-aware compression for missions.

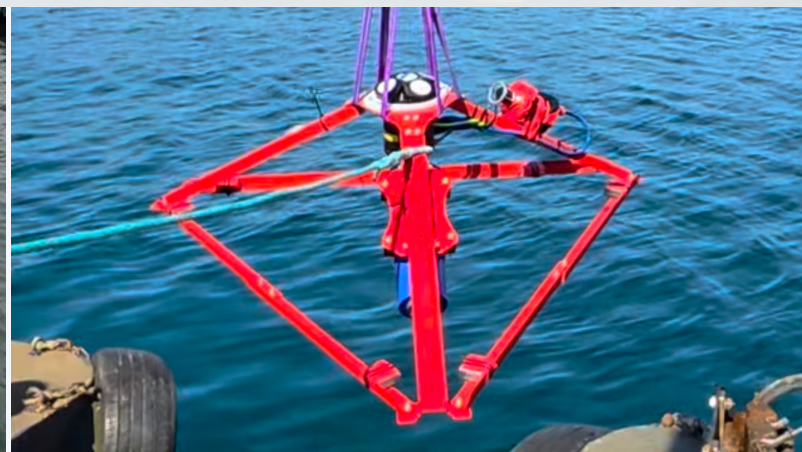
Subsea sensing

From stored data to delivered insight. Subnero Wireless Integrated Suite (SWIS) processes data at the edge and delivers it to shore.



Photo: ARL, NUS

AUV fitted with a Subnero modem



SWIS ADCP deployment

THE OFFERINGS

Simulate first, then deploy

Simulate first

Underwater trials are expensive, and the UnetStack simulation ecosystem is built for fidelity: the performance you see on the desk closely predicts the performance you will get at sea.

Then deploy

On Subnero smart modems, or on a modem of your own built around UnetCube. The same open source UASP interface connects a modem or UnetCube to the Virtual Acoustic Ocean for hardware-in-the-loop testing.

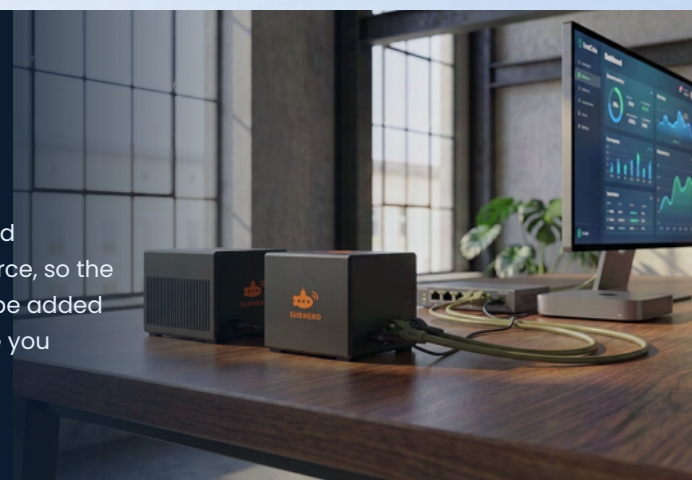
Which one, when

Feature	UnetSim	UnetCloud	UnetCube	Subnero modems
What it is	Network simulator on your computer	Modem-grade nodes hosted in the cloud	Digital modem: full UnetStack, no transducer or analog front end	Complete acoustic smart modems
Best for	Protocol and network design, large simulations	Testing the real stack without hardware, rehearsing sites you cannot reach	Hardware-in-the-loop, building your own modem, adding full stack to an existing modem	Deployment and field operations
Physical layer	Abstracted	Full modem PHY	Full modem PHY	Full modem PHY
Channel	Model-based	Virtual Acoustic Ocean	Virtual Acoustic Ocean, or your own analog front end	Real ocean, or Virtual Acoustic Ocean for testing
Hardware needed	None	None	UnetCube, plus your analog side for a modem	Modem
Edition	Community or Commercial	OEM	OEM	OEM

UnetCube

Building your own modem

Supply the analog electronics, ADC and DAC, and a transducer, and UnetCube does the rest. The interface protocol, UASP2, is open source, so the integration can be done entirely on your own. UnetCube can also be added to a 3rd party modem, bringing UnetStack networking to hardware you already have.





Three editions, one framework

NON-COMMERCIAL USE

Community

For education and research

LICENSED

Commercial

For commercial use

EMBEDDED

OEM

Inside modems, UnetCube,
UnetCloud

Download at unetstack.net

Read the handbook at unetstack.net/handbook

Request a demo at info@subnero.com



unetstack.net



Whitepaper