Roadmap for New Acoustic Navigation System

Upgrades to National Deep Submergence Facility

Status of NDSF Nav Systems:

- **Navigation for NDSF vehicles has improved dramatically**

- **State-of-the-art for deep submergence vehicle positioning**

- **Redundant sensors and greater flexibility**

Why a new system?

? **Obsolescence of current hardware systems ? reduced reliability**
    -- some hardware (e.g. Benthos 455 deck unit) > 20 years old

? **Impending new requirements for navigational capabilities**
    -- Ridge DB, ISS, multiple vehicle nav

? **Need for improved efficiency**

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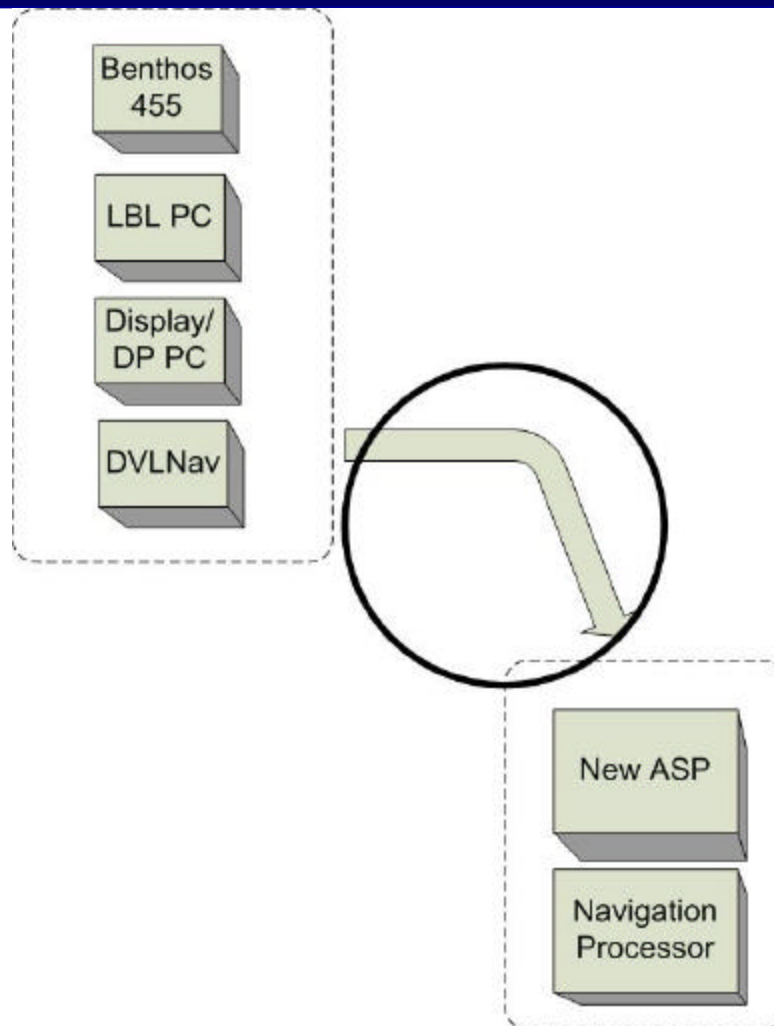
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Where we are now

- **Benthos 455 Acoustic Signal Processor (ROV, *Alvin*)**

- **LBL PC**

- **Custom Hardware (*Alvin*)**

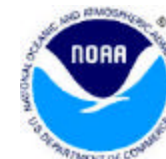- **DP/Display PC (ROV)**

- **DVLNav PC (ROV, *Alvin*)**

Upgrade efforts

Winfrog   **Siglab**

DS7000   **Micromodem**

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Where we want to be

- **"Generic" ASP usable with all vehicles** (ROV, *Alvin*, AUVs)

- **Computational engine**

- **Multiple customizable displays**

- **"Generic" I/O**

- **Extendable/supportable**

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Phase A

- **Development/procurement of new ASP**

    ? **Development of requirements (ongoing)**

    ? **Promulgation to potential vendors/internal developers**

    ? **System development/test**

    ? **Software port/enhancement as necessary**

    ? **Hardware procurement/replacement**

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Phase A Requirements

- **Compatibility with existing vehicles/modes**
  - ? *Jason*, **DSL120,** *Alvin*, **AUVs, elevators, transponders, relay, layback**

- **Compatibility with simultaneous multiple vehicle navigation (Bradley/Yoerger)**

- **"Generic" list of ASP requirements**

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Phase B Plans

- **Enhancement to DVLNav capabilities**

  - ✍ **Dynamic Positioning (DP)**

  - ✍ **Long Base Line (LBL)**

  - ✍ **Multiple independent displays (master/slave)**

- **Implementation of new hardware/software across vehicle fleet**