The Essential Upgrader's Guide to the VideoRay Pro 4
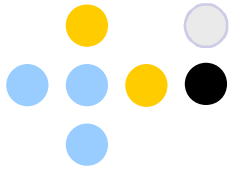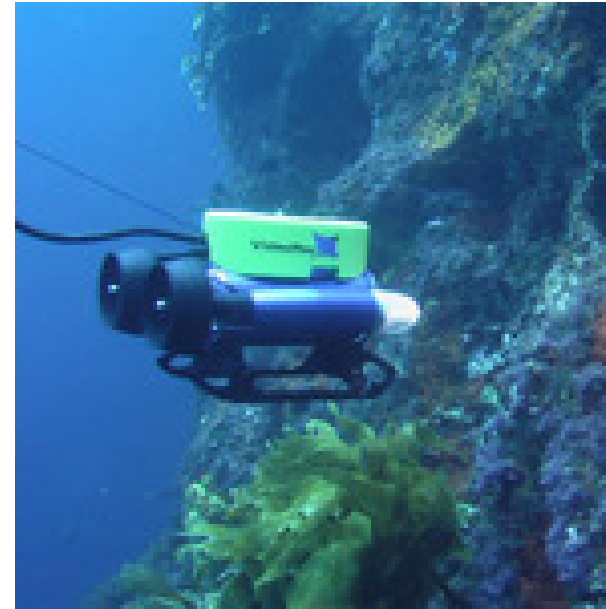
What's *Not* New…
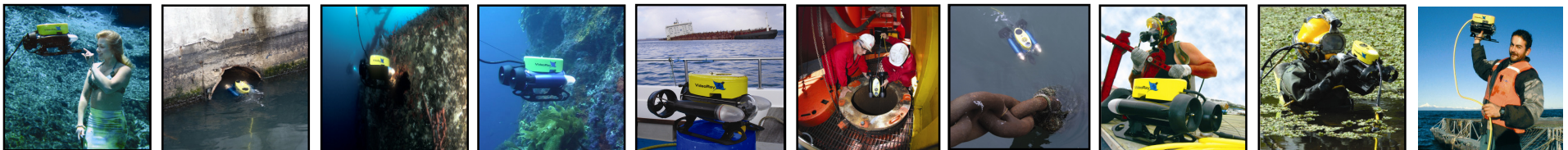
The end of an era

Best products available on the market…
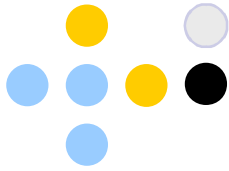
but they can't take us to where we
want to be in the future.
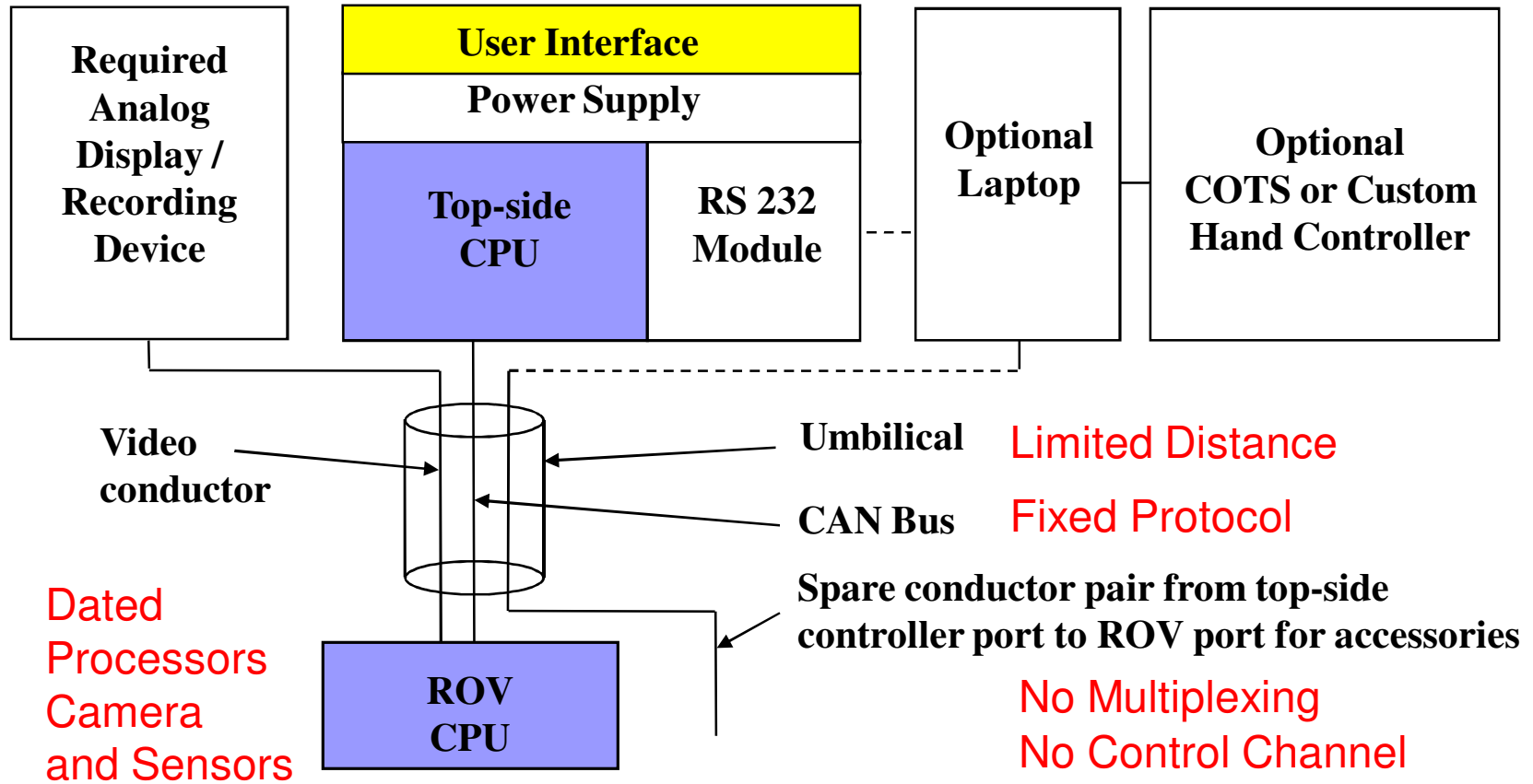
1981 - 2010   2006 - 2010
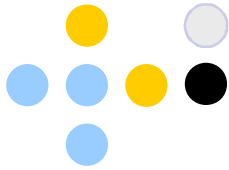
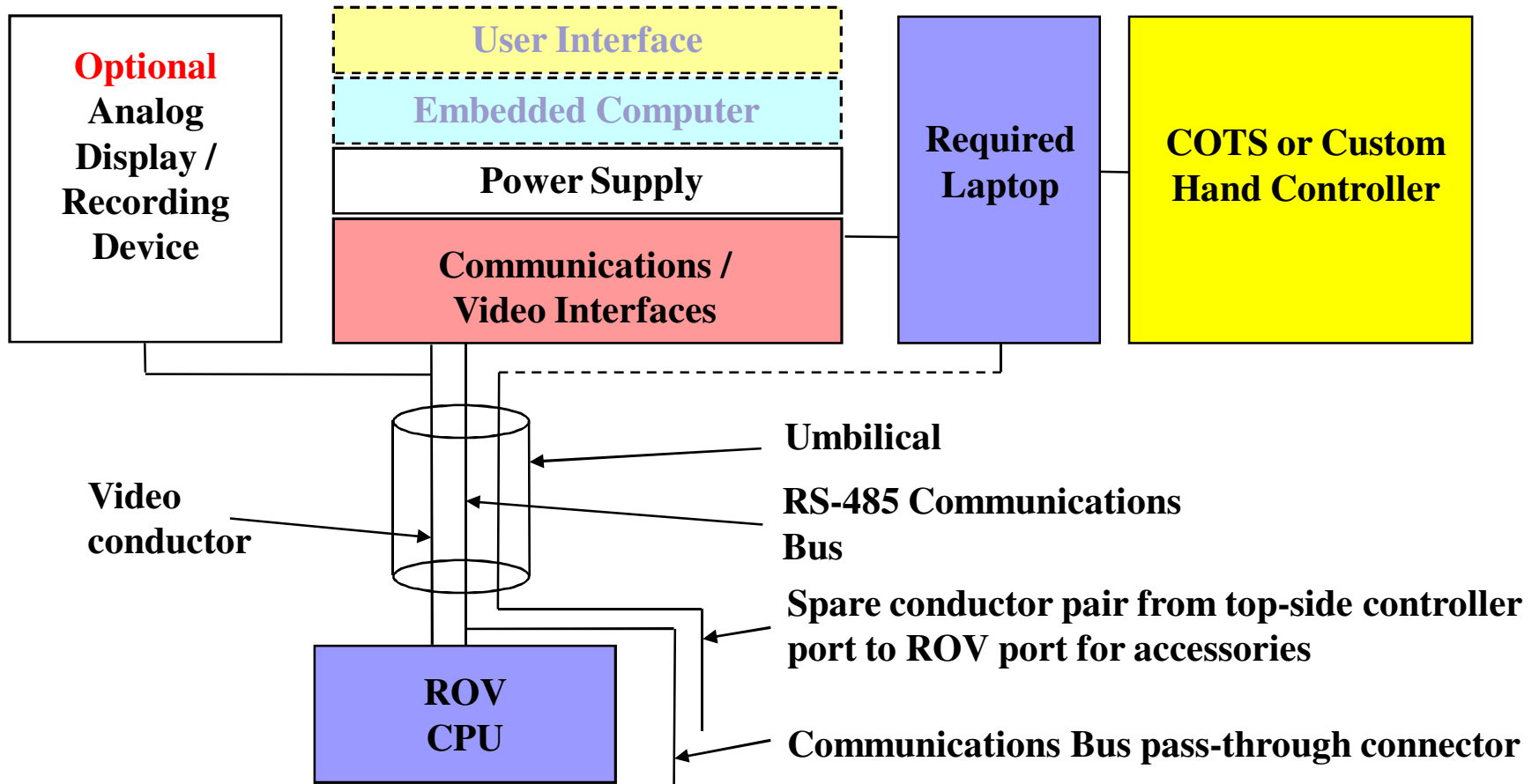# Phillips-Based Growth Limitations

Lacks Synchronization   **Power Max'ed Out**   **Limited Integration**

Required Analog Display / Recording Device	User Interface		Optional Laptop	Optional COTS or Custom Hand Controller
	Power Supply			
	Top-side CPU	RS 232 Module		

Video conductor

Umbilical   **Limited Distance**

CAN Bus   **Fixed Protocol**

Dated Processors Camera and Sensors

ROV CPU

Spare conductor pair from top-side controller port to ROV port for accessories

No Multiplexing
No Control Channel

Pro 4 Architecture

Optional Analog Display / Recording Device

User Interface

Embedded Computer

Power Supply

Communications / Video Interfaces

Required Laptop

COTS or Custom Hand Controller

Umbilical

RS-485 Communications Bus

Video conductor

Spare conductor pair from top-side controller port to ROV port for accessories

ROV CPU

Communications Bus pass-through connector
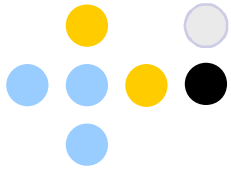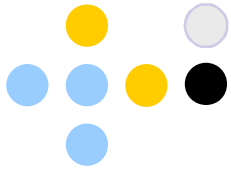
Pro 4 Foundation

Built on solid proven technologies

- Deep Blue hull structure (1,000 ft depth)
- GTO propellers / nozzles
- Cartridge seals
- Plug and play tether
- Industrial grade user control components
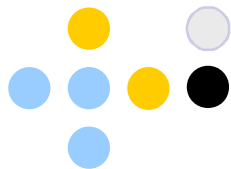- COTS computer
- PC Pilot software

Pro 4 New Technologies

State-of-the-art processors and sensors

- New camera

- New pressure sensor

- New temperature sensor

- New humidity sensor

- KCF Smart Tether node in the ROV

    - 3-D Compass, Accelerometers, MEMS Gyros

    - Pitch

    - Roll

Pro 4 New Technologies

Highly efficient brushless motors and tuned controllers
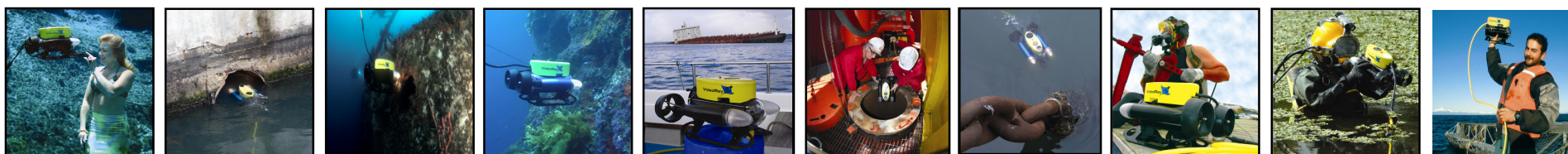
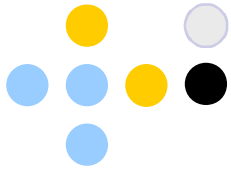*Vertical thrust ducting*

Highly efficient LED lighting

Servo controlled Tilt and Focus

New rugged smaller profile float block and skid

Tool-less ballast adjustment

Thrust centered bridle

Pro 4 New Technologies

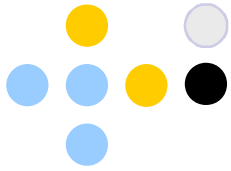*Efficient higher voltage power supply with Line Insulation Monitor safety circuit*

Integrated computer available for multiple applications

Cable-less topside accessory integration

- BlueView   KCF Smart Tether
- Tritech   Desert Star
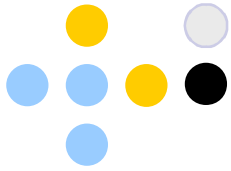- Radiation Sensor

Dual screen support

Pro 4 Technologies

VideoRay Cockpit

- Heads-up transparent instruments
- One touch operation
- Tunable gain settings
- Auto modes
- New pilot modes
- Accessory integration
- Power management
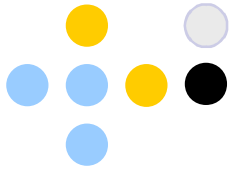- Online multimedia documentation

Pro 4 New Technologies

SDK with robust, extensible comms protocol

- RS-485

- Addressable (Multiplexing)

- 2,000 + feet of tether

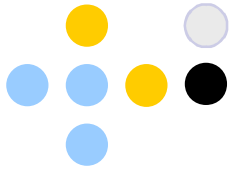*PAMULA*

- ROV "brains" to go

- Robust accessory platform

Accessory Port

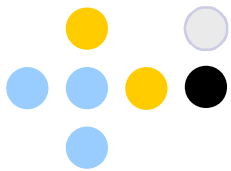| Pin	Function (Pro 3 / Deep Blue)	Function (Pro 4)
1	Video -	Video -
2	Video +	Video +
3	48 VDC +, 30 Watts	**24 VDC +, 30 Watts**
4	Aux +	Aux +
5	Ground	**Power Common (Ground)**
6	Aux -	Aux -
7	Manipulator 24 VDC -	**RS-485 Tx**
8	Manipulator 24 VDC +	**RS-485 Rx**
9	12 VDC +, 6 Watts	12 VDC +, **30 Watts**

Benefits

Reach

Performance
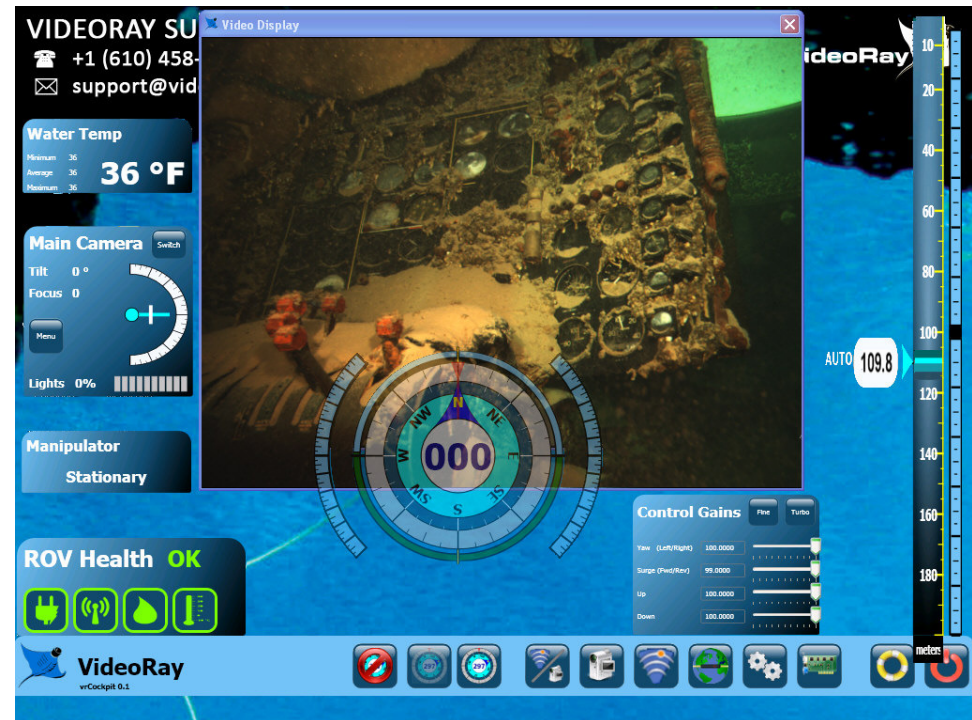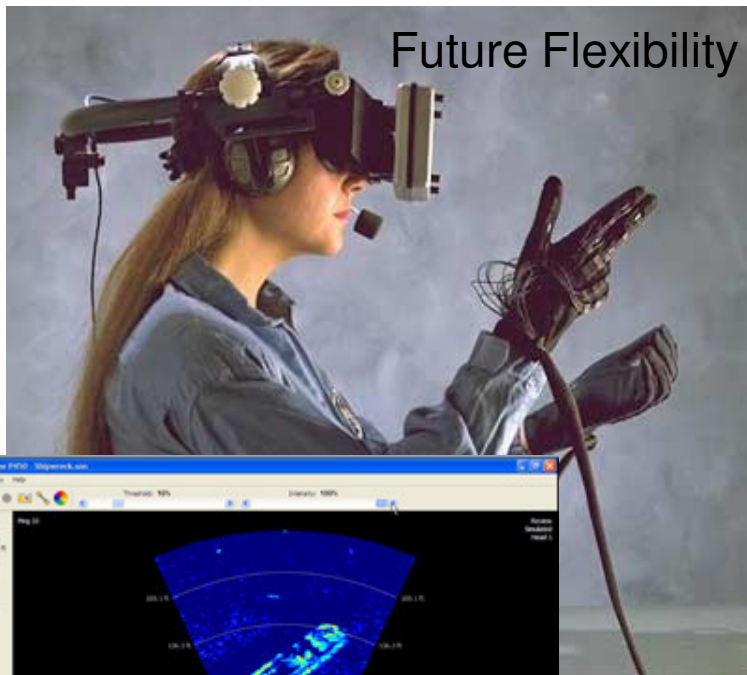
Operator experience
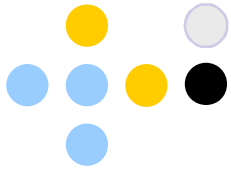
Imagery results

Additional data

Expansion capabilities

Leading to Exciting Possibilities

Future Flexibility
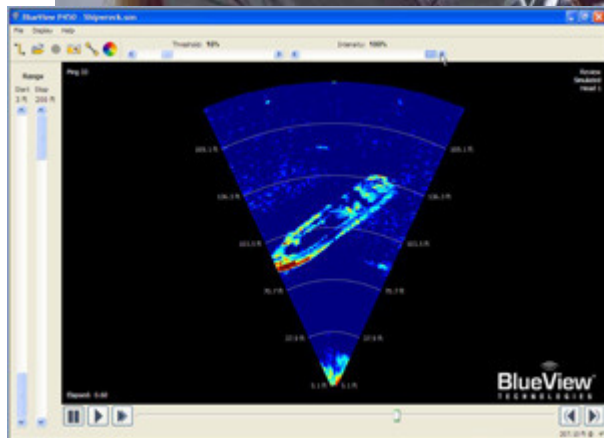
Dashboard Instruments /
Diagnostics

Tighter
Integration

Benefits Demonstrations

Camera

Lights

Thrust

User interface

(Auto) pilot control

Accessory integration