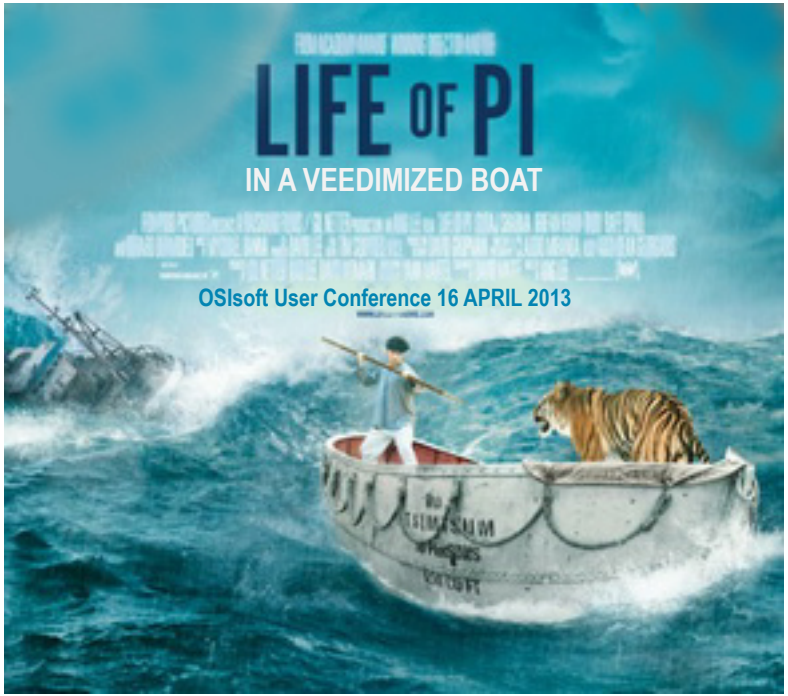


Presented by **Tony Fenn ,** Director Systems Engineering, Veedims, LLC

© Copyright 2013 OSIsoft, LLC.

It started with a car…

Iconic AC Roadster
All electrical and electronic systems in the vehicle are controlled and managed by VEEDIMS, including the fuel cap, headlights, taillights, ignition, gauges, switches and it has a 5K PI System and wireless link to a fleet PI System

Displayed at the OSIsoft User Conference 2010

And then a boat…

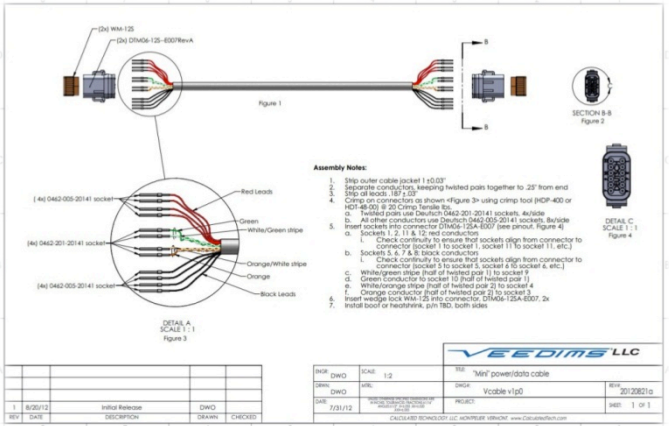
Cigarette
Over two dozen mechanical switches, a variety of circuit breakers, and over 60 pounds of wiring has been deleted from the build, and replaced by VEEDIMS and three touch screen 15 inch displays. Over 2100 data points flow to a fleet PI System

© Copyright 2013 OSIsoft, LLC.

“VEEDIMS connects everything in a vehicle and connects all vehicles together, using Vfleet”

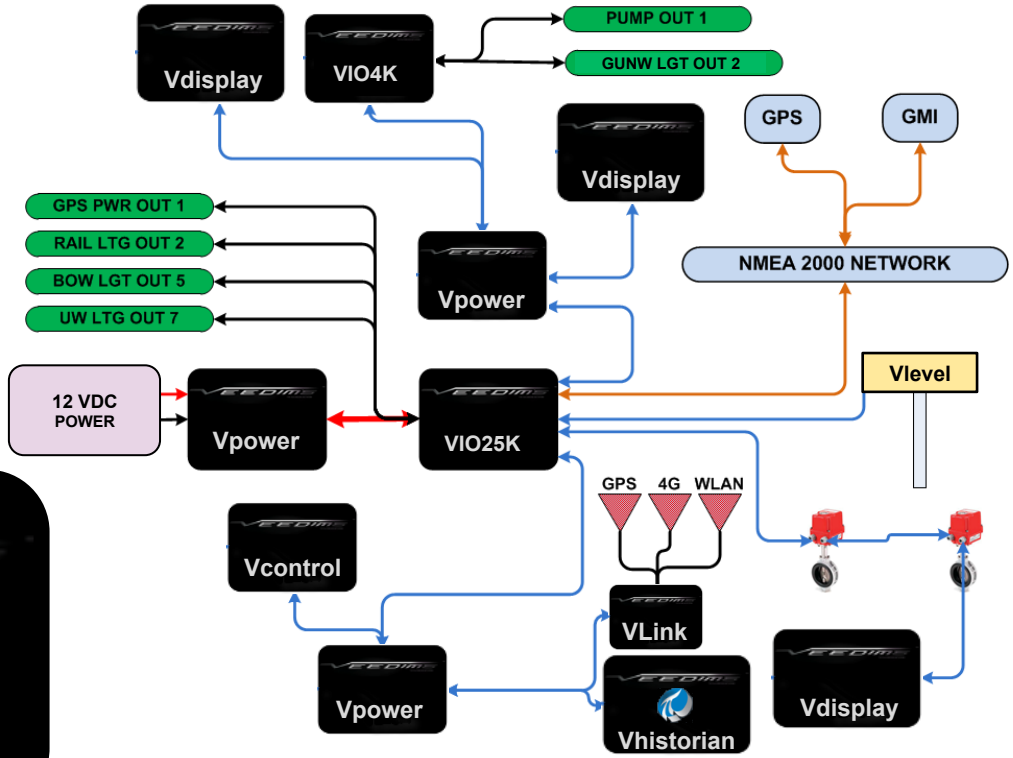
- 2005 Iconics Motors LLC develops a new type of wiring harness to handle all vehicle electrical and data capabilities
- 2007 VEEDIMS LLC is formed and the first ‘Veedimized’ Iconic Roadster with an embedded PI System is displayed at the 2010 OSIsoft Users Conference
- 2010 Mr. Ballard was named “Inventor of the Year” by the United States Business and Industry Council
- 2011 VEEDIMS enters the Marine market and deploys control and monitoring technology in Cigarette and Contender boats
- 2013 VAR Partnerships are signed with KEP Systems and Ward Marine Electronics

The inspiration behind VEEDIMS revolutionary and patented technology comes from entrepreneur, inventor and VEEDIMS Founder and Chairman, Claudio Ballard.



© Copyright 2013 OSIsoft, LLC.

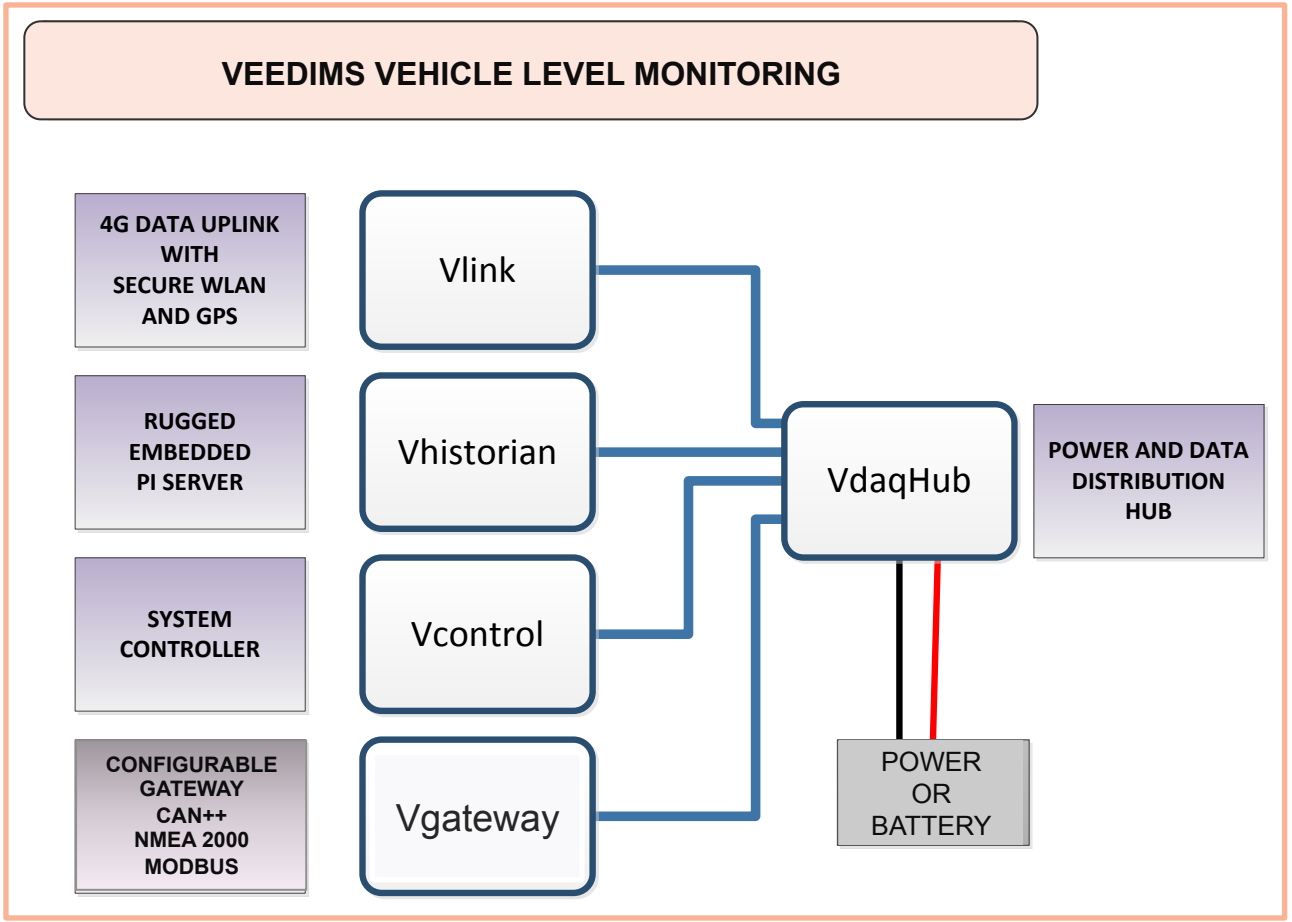
VEEDIMS typical vehicle control and monitoring



VEEDIMS MODULES

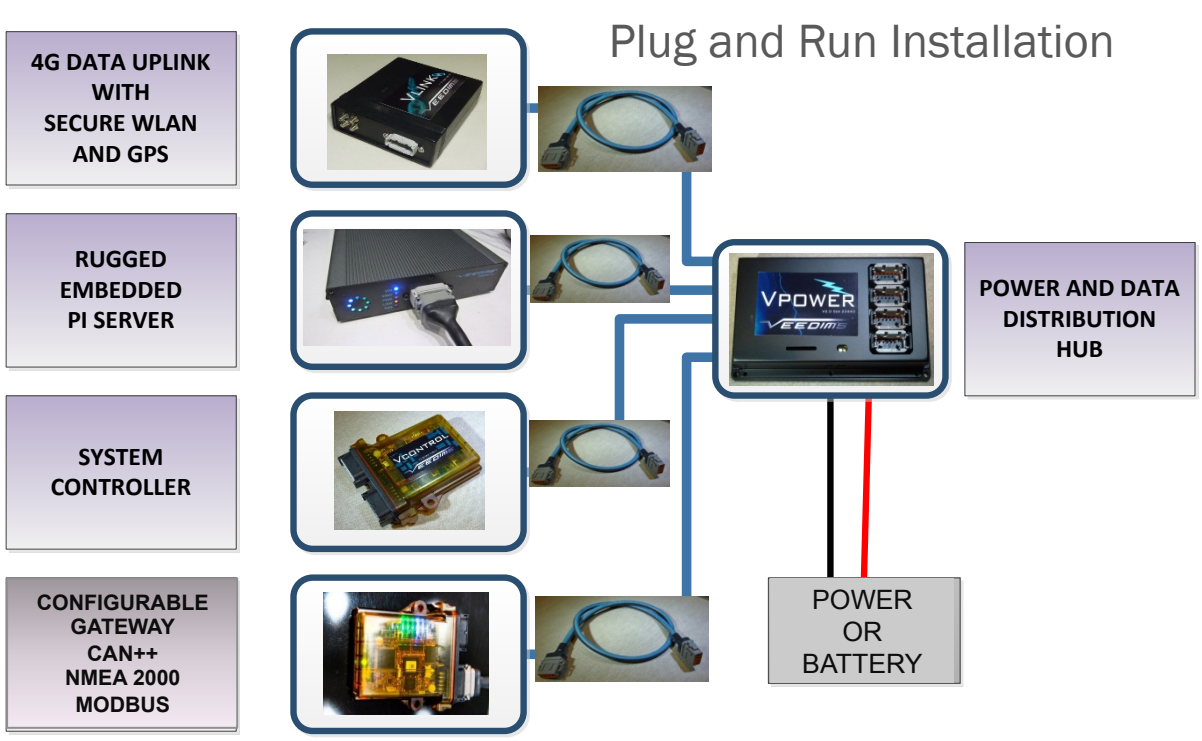
Vpower - distributes power and data
Vcontrol - logic controller
VIOxK - i/o modules
Vdisplay - 7” & 10” hi res touch
Vhistorian - embedded PI Server
Vlink - 4G cellular, Wifi, GPS

© Copyright 2013 OSIsoft, LLC.



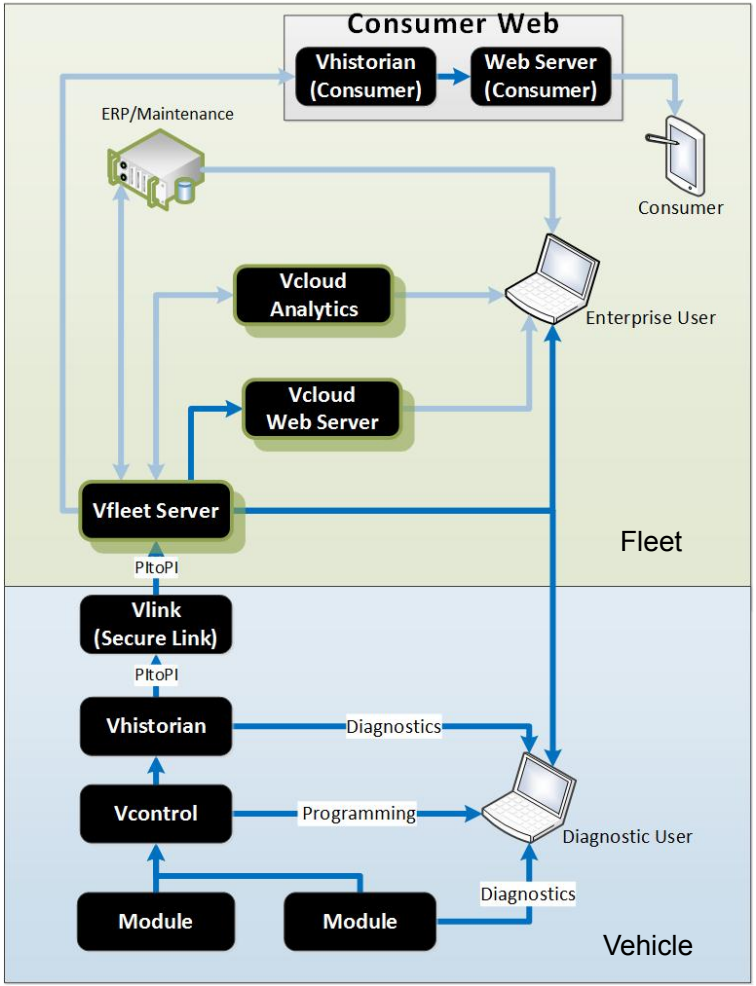
© Copyright 2013 OSIsoft, LLC.

VEEDIMS VEHICLE LEVEL MONITORING



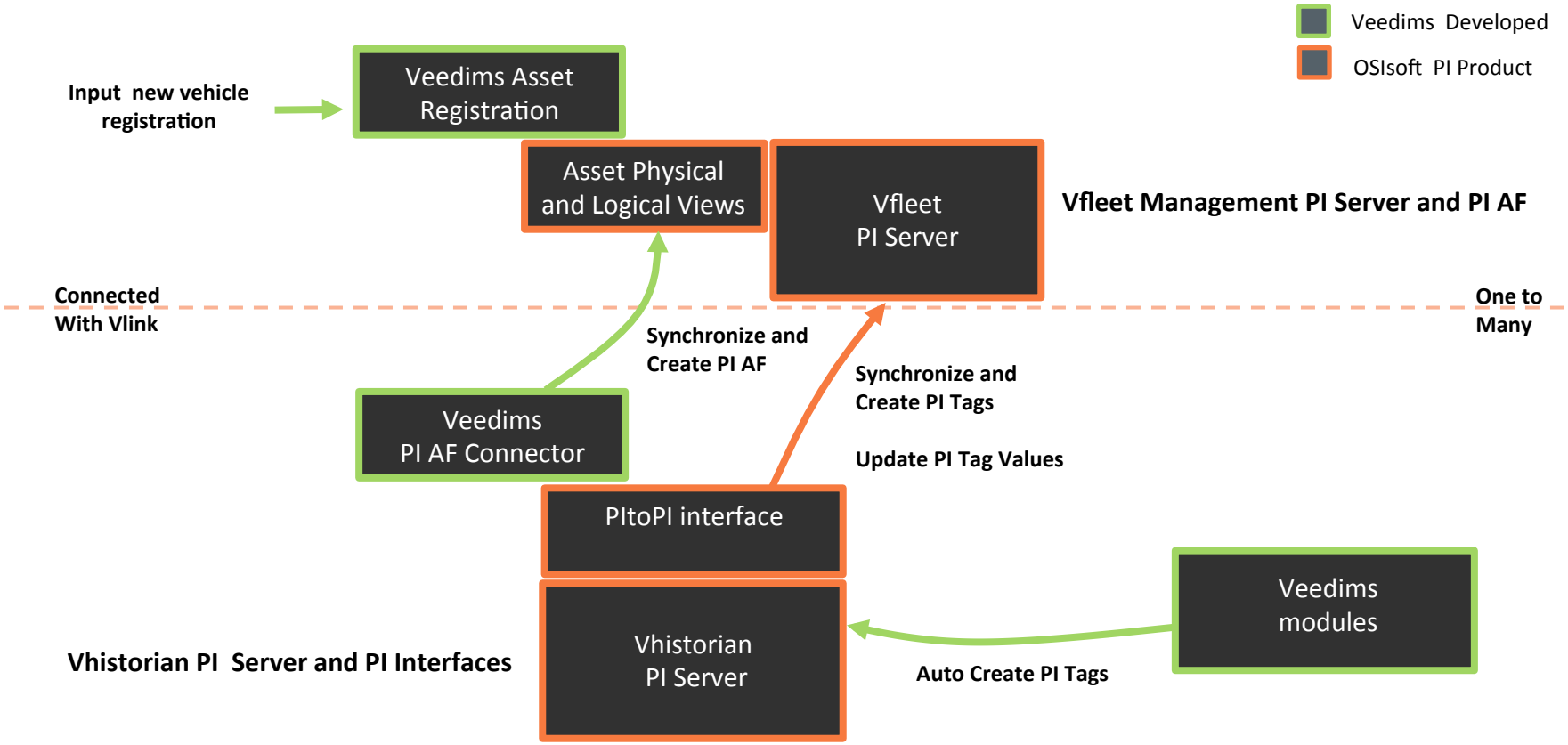
© Copyright 2013 OSIsoft, LLC.

The PI System is used
in an architecture to support the
management of fleets of assets



© Copyright 2013 OSIsoft, LLC.

Vfleet and Vhistorian zero integration details

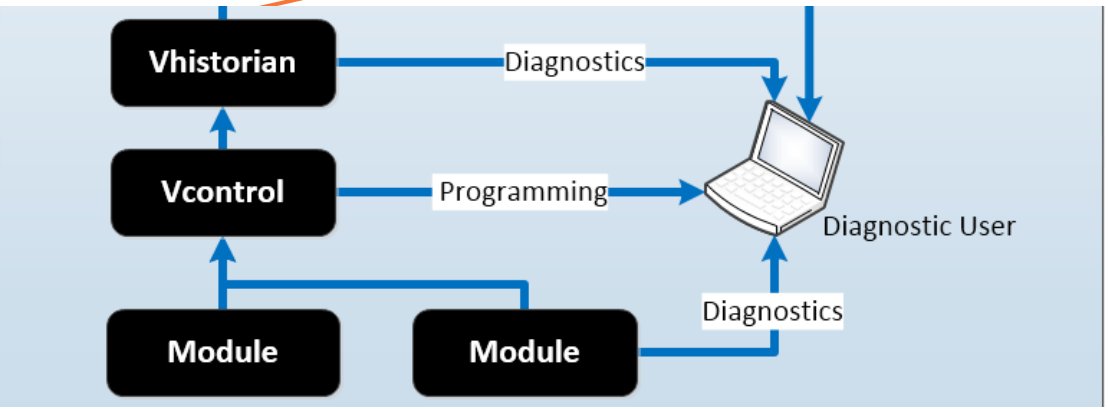


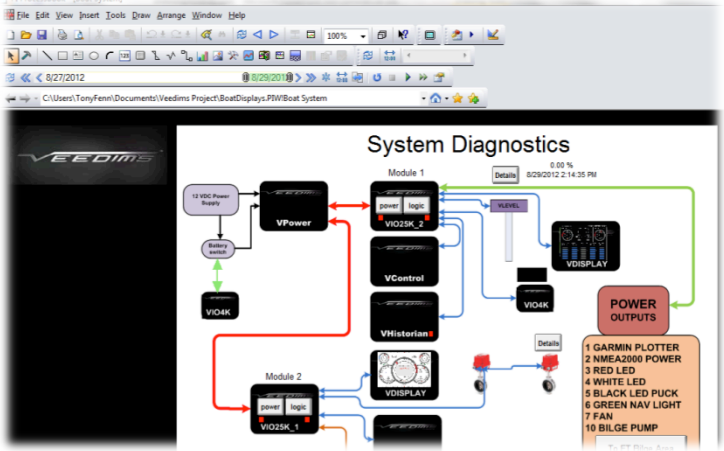
© Copyright 2013 OSIsoft, LLC.

Auto tag creation and data collection at Vehicle level

Vcontrol automatically creates the PI tags used to monitor devices and automatically begins to store raw data into it's on board PI Server

Sets of pre built PI ProcessBook displays are used by vehicle engineers if needed to troubleshoot the Veedim's control system



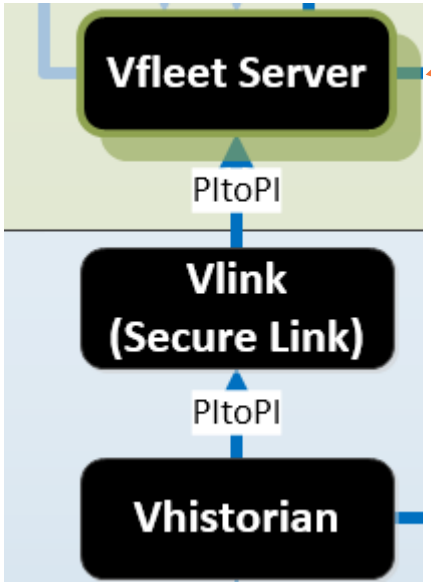


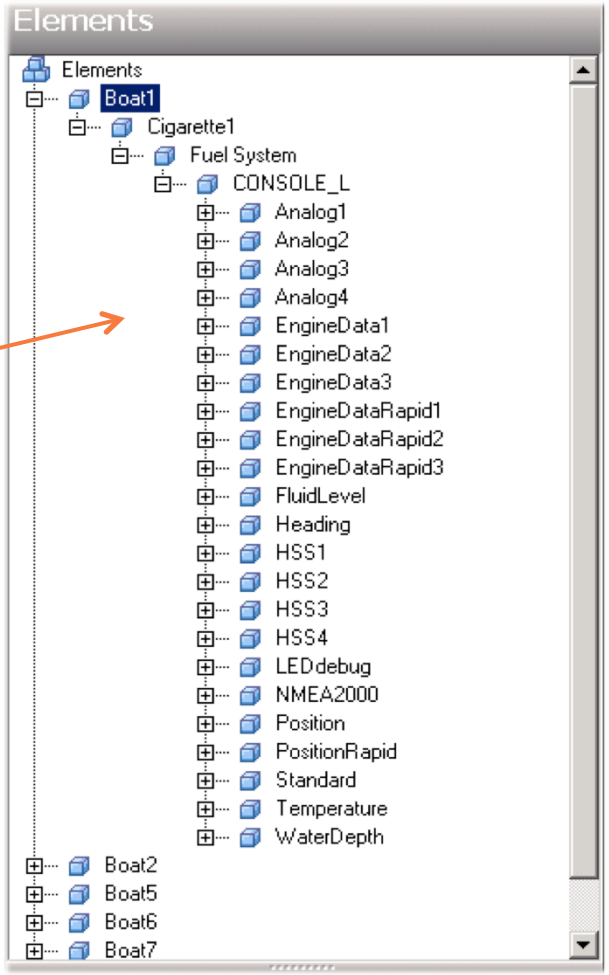
© Copyright 2013 OSIsoft, LLC.

Automatic synchronization of data and assets in PI AF

Data from each asset Vhistorian is replicated to the Vfleet master

When each new vehicle is registered with the fleet level PI Server, a physical asset model is also built on the fleet level PI AF Server

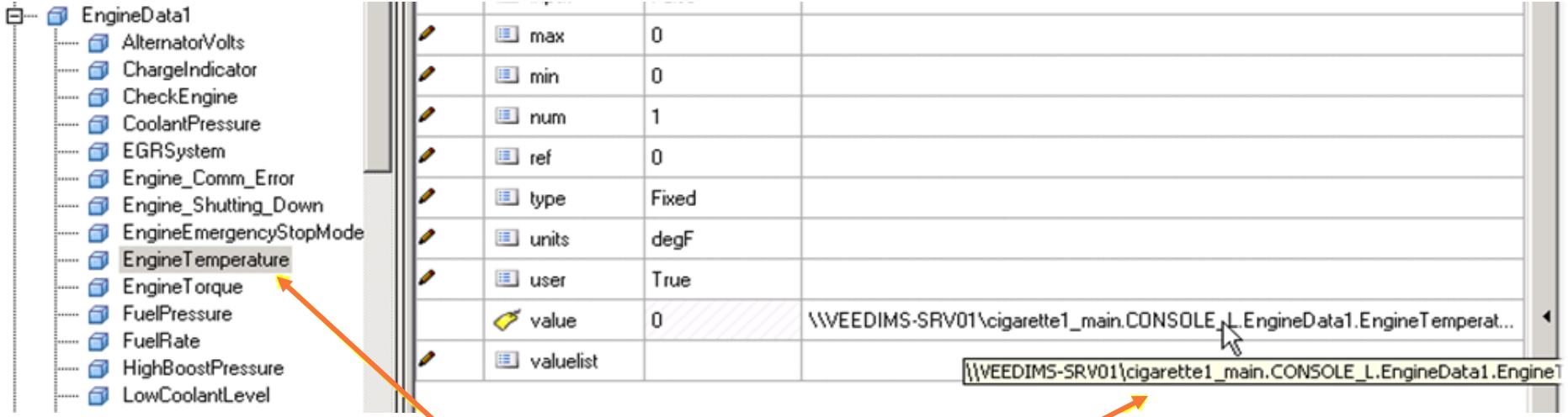




© Copyright 2013 OSIsoft, LLC.

Automatic synchronization of data and assets contd.

Even though each vehicle's data is stored in one fleet level PI AF Server, all individual asset data is uniquely identified and can be easily retrieved across the fleet using common 'attribute names'.



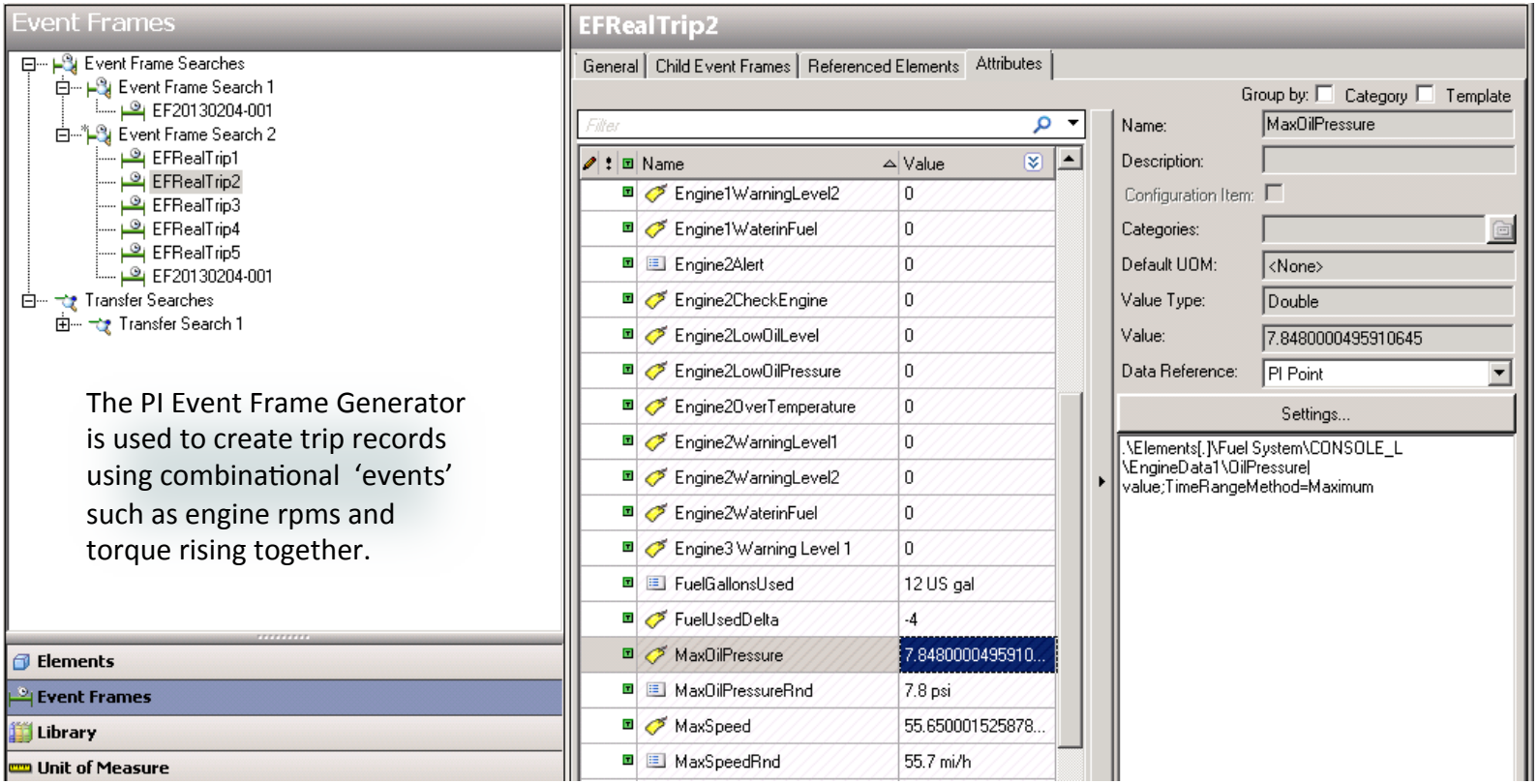
PI AF elements and attributes are automatically created by the Veedims AF Connector

PI Tag Names are automatically created and uniquely prefixed by the Veedims Vehicle Registration process

© Copyright 2013 OSIsoft, LLC.

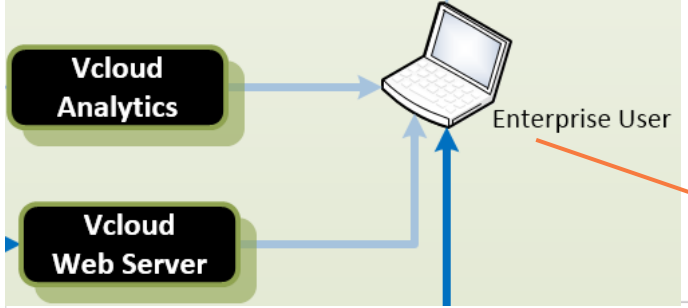
Automatic tracking of trips using PI Event Frames

The fleet level PI AF Server also contains the trip records of all assets as well as trip analytics

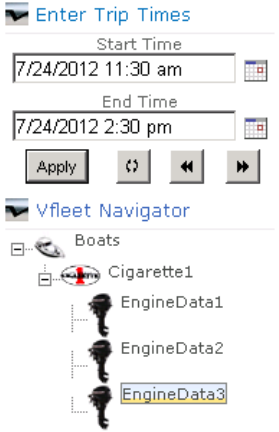


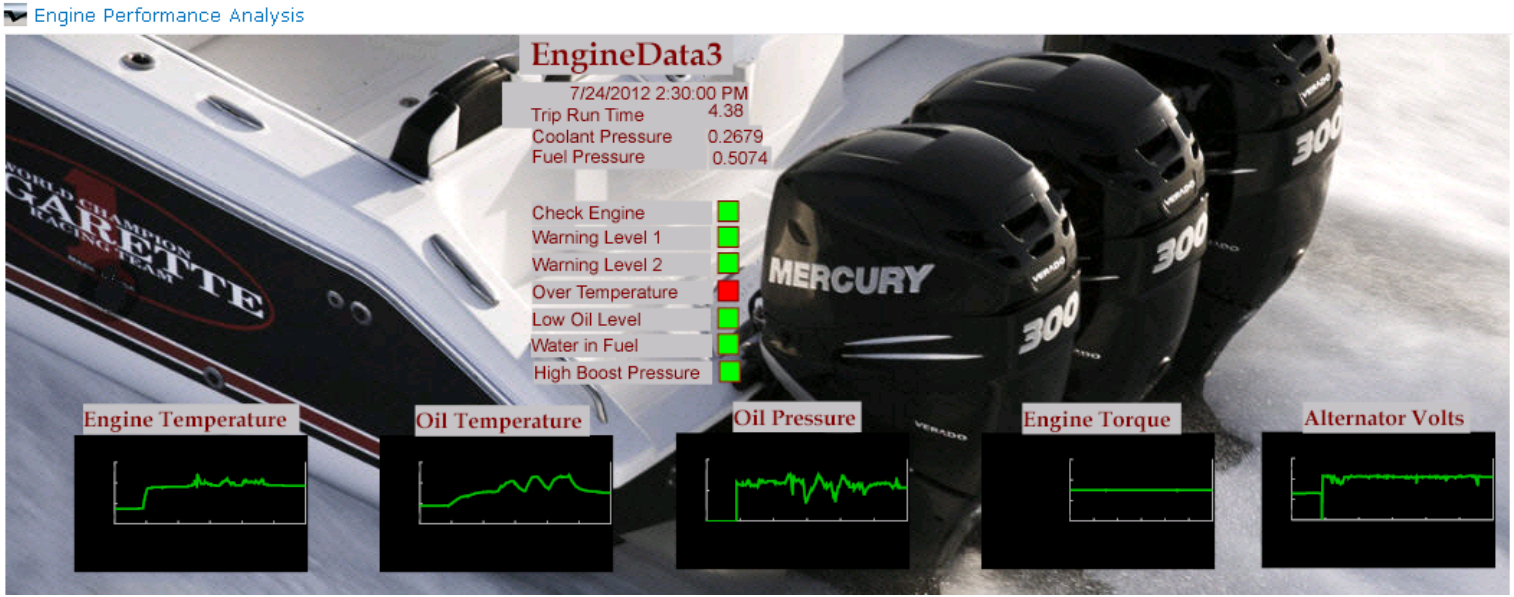
© Copyright 2013 OSIsoft, LLC.

PI WebParts displays



PI WebParts are used to build asset relative displays across the whole fleet for vehicle engineers

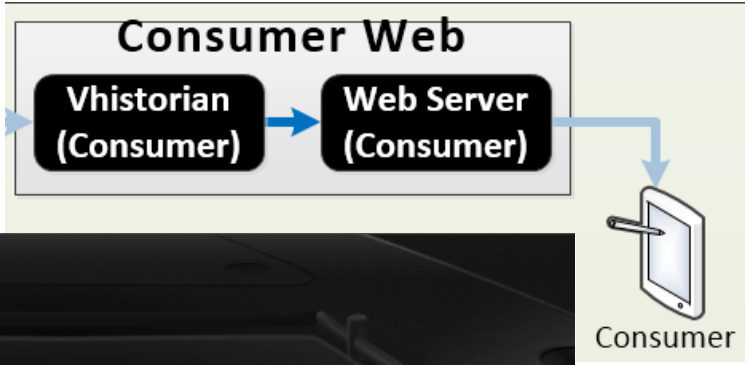




© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications

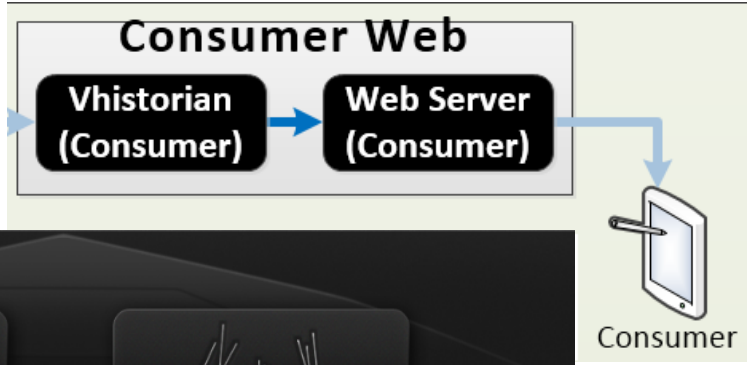
For certain consumer facing applications more custom Web views are needed



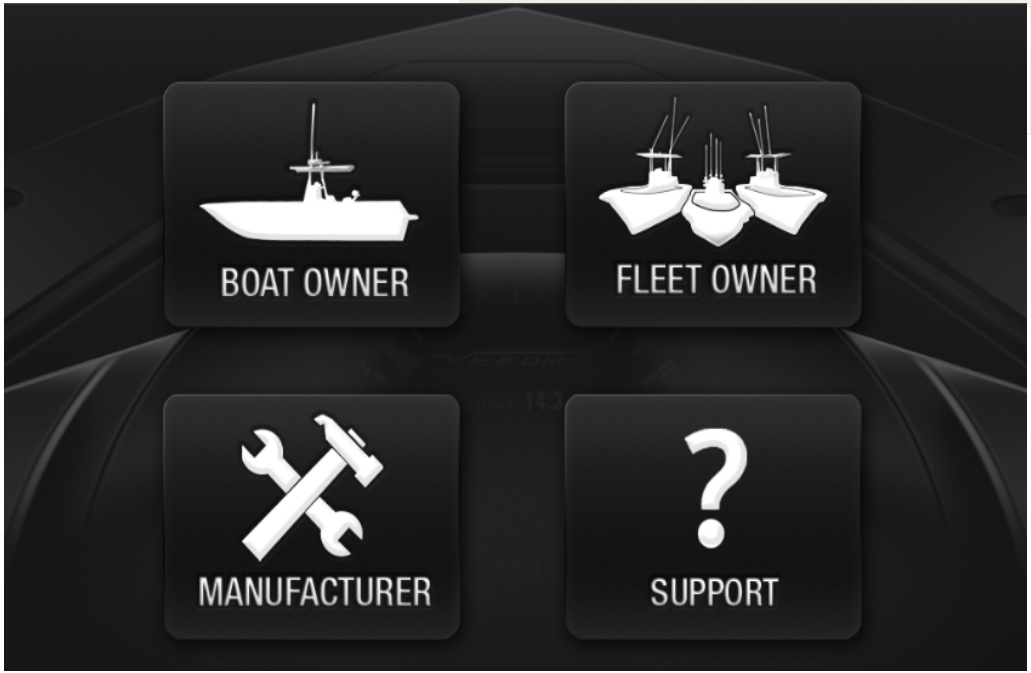
Custom web and mobile apps have been built using PI Web Services, PI AF SDK and PI Notifications

© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications

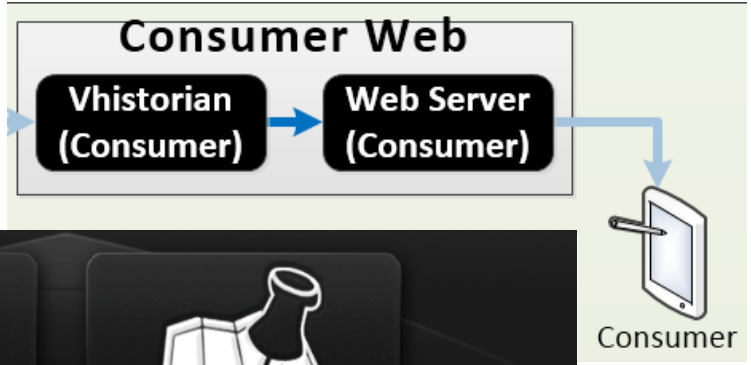


Different users can navigate the web application as the PI AF element structure contains boat owners, fleet owners and boat manufacturers



© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications



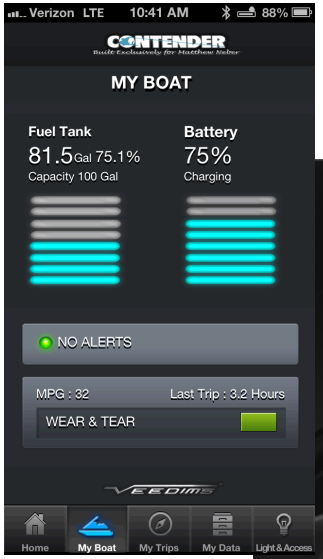
An owner can look at his boat information in different ways

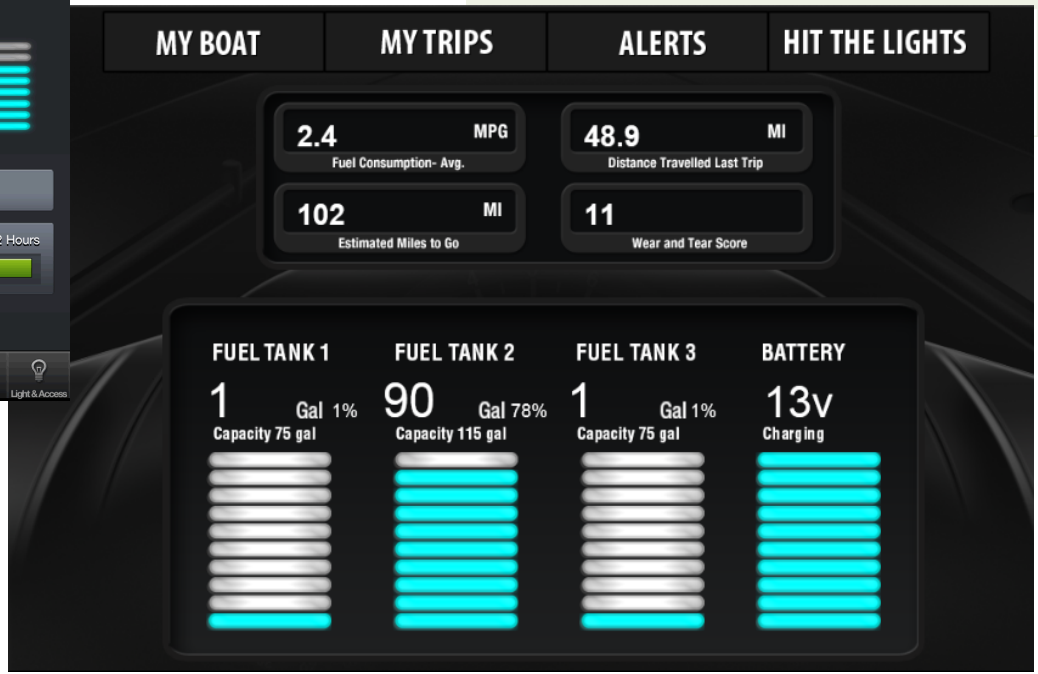
© Copyright 2013 OSIsoft, LLC.

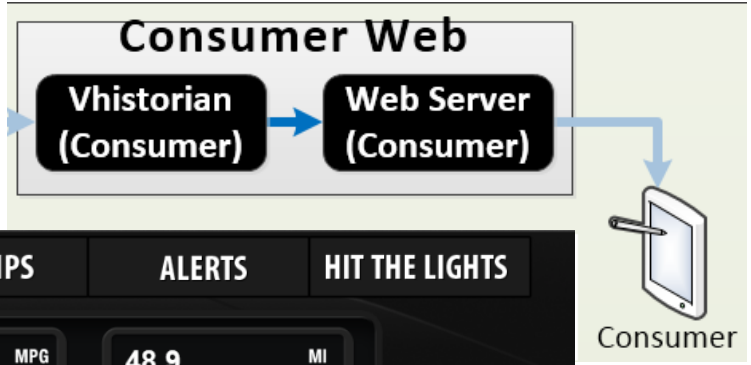
Custom built consumer facing applications

The MY BOAT display is aimed at a quick systems status check before the next trip.

This uses a mix of real time data and PI Event Frame analytics

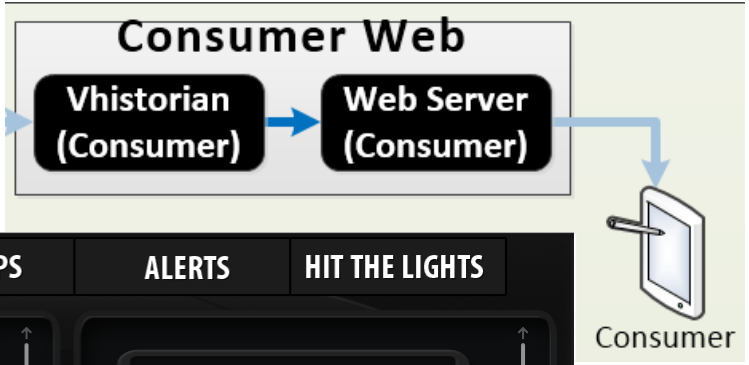






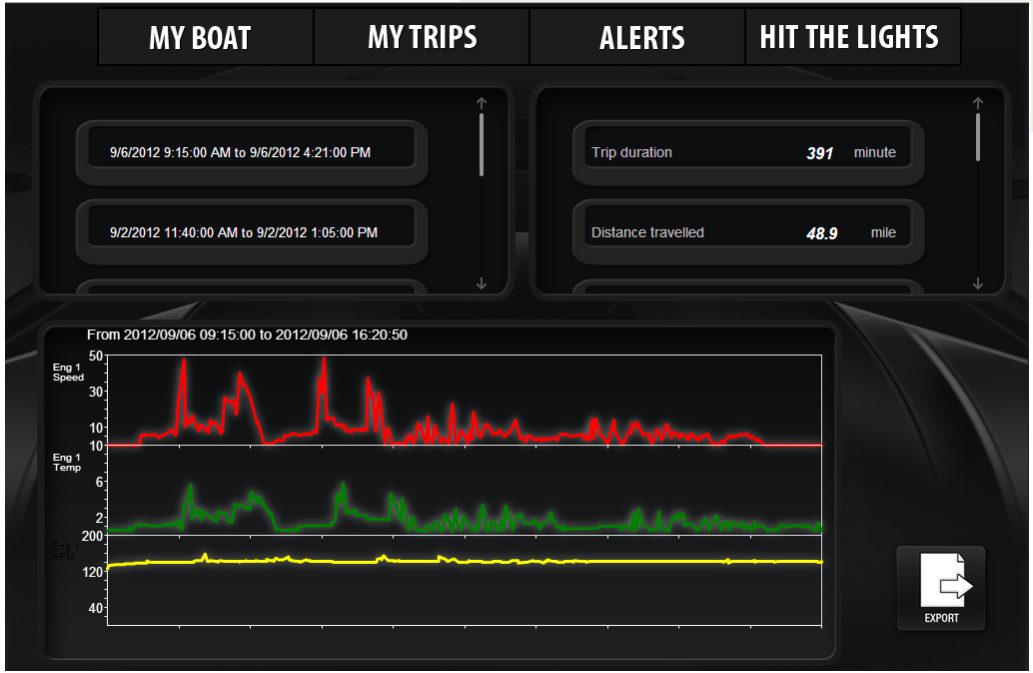
© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications



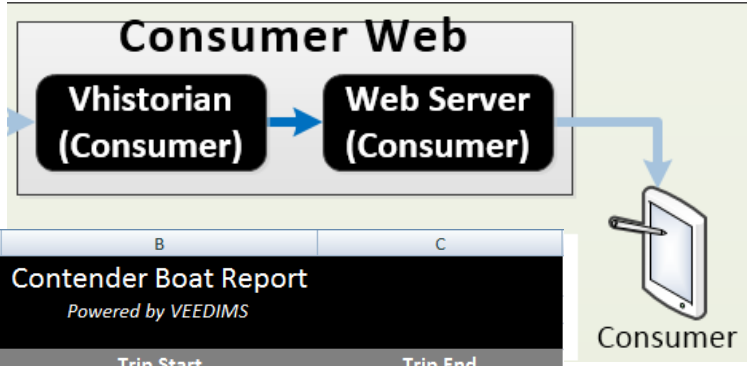
The MY TRIPS display uses the PI AF SDK to retrieve PI Event Frames, trends and analytics for a list of last trips

An Export button sends the selected trip data to an Excel report



© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications

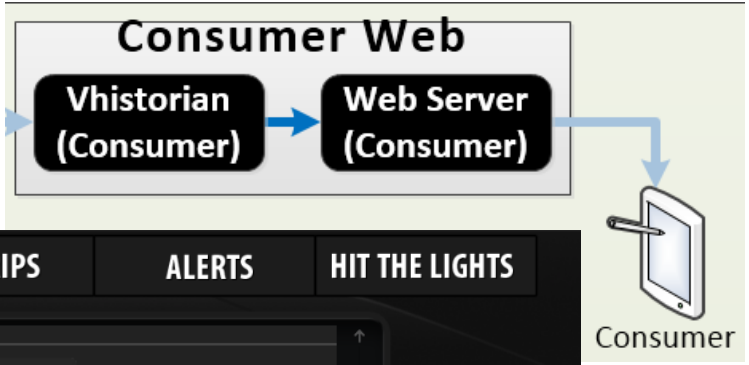


The last 10 trips are sent to an Excel report for the owner using the PI AF SDK

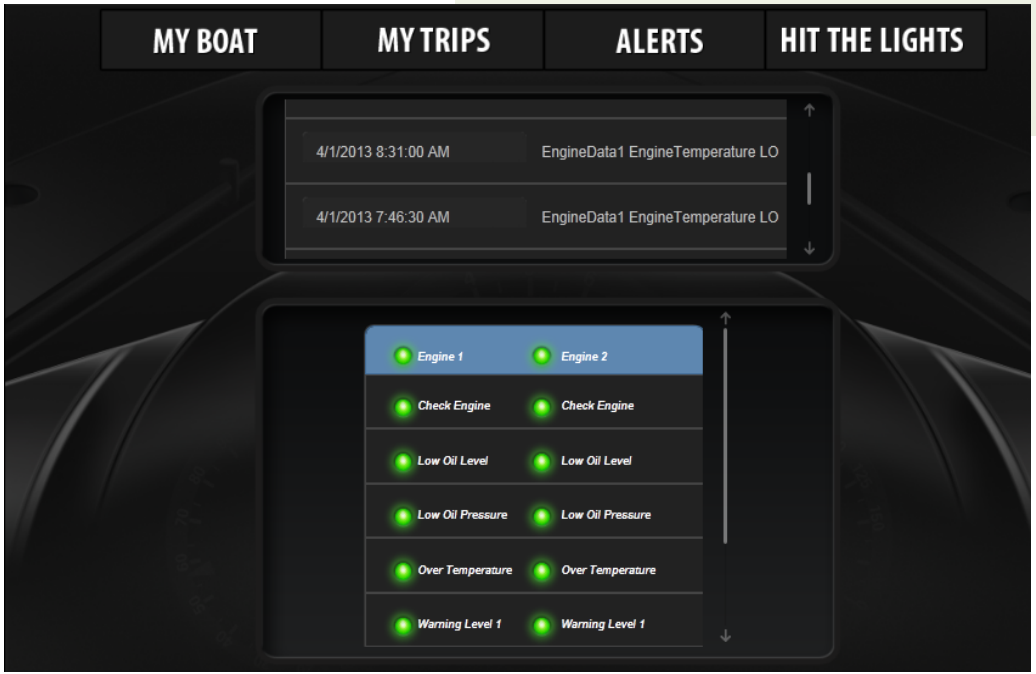
	A	B	C
1	Contender Boat Report		
2	*Powered by VEEDIMS*		
3			
4	**Trip Name**	**Trip Start**	**Trip End**
5	EFRealTrip1	7/24/2012 1:35:00 PM -04:00	7/24/2012 2:30:00 PM -04:00
6	**Report Name**	**Report Description**	**UOM**
7	Trip duration	47	mins
8	Distance travelled	12.4	mi
9	Fuel used	21	gallons
10	Maximum Oil Pressure	6.7	psi
11	Maximum Speed	53.2	mi/hr
12	Miles to go	111	mi
13	Fuel consumption - actual	1.7	mpg
14	EFRealTrip2	8/3/2012 11:46:00 AM -04:00	8/3/2012 2:18:00 PM -04:00
15	**Report Name**	**Report Description**	**UOM**
16	Trip duration	148	mins
17	Distance travelled	27.6	mi
18	Fuel used	12	gallons
19	Maximum Oil Pressure	7.8	psi
20	Maximum Speed	55.7	mi/hr
21	Miles to go	450	mi
22	Fuel consumption - actual	0.4	mpg
23	EFRealTrip3	8/31/2012 10:06:00 AM -04:00	8/31/2012 12:09:00 PM -04:00
24	**Report Name**	**Report Description**	**UOM**

© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications

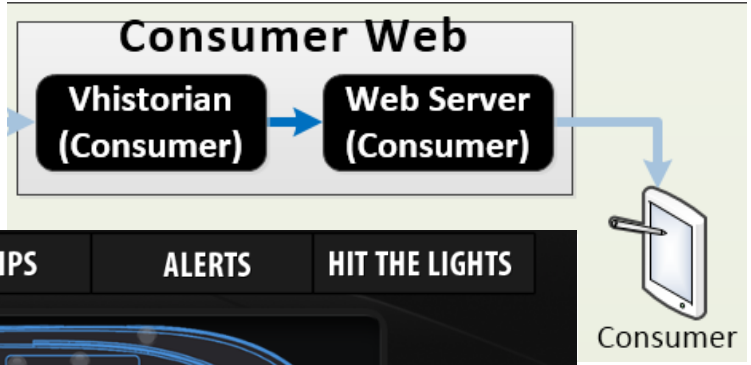


PI Notifications are used to send email alerts to the owner and also show a list of the last 10 alerts. PI AF SDK is used to get the alert light status of the last trip



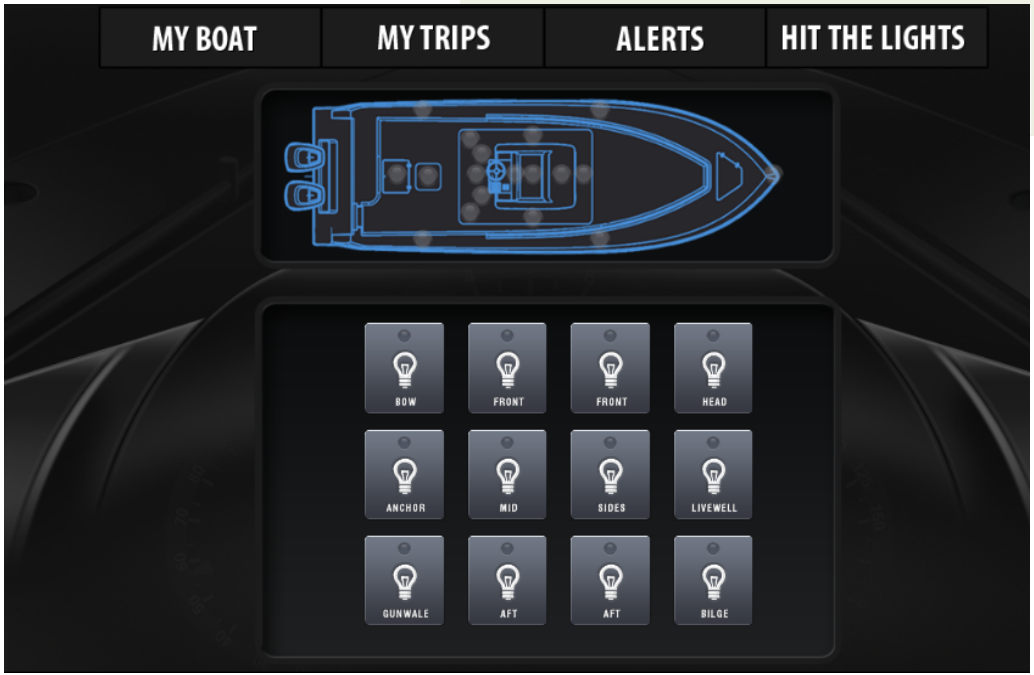
© Copyright 2013 OSIsoft, LLC.

Custom built consumer facing applications



We have allowed the owner to remotely operate some of the safer boat systems, such as the lights, via his mobile device.

This is done by writing to PI AF attributes which are connected to PI output tags.



© Copyright 2013 OSIsoft, LLC.

CONTENDER powered by VEEDIMS

It all started with a screen.....

Contender wanted to provide a unique user experience for their customers.

Contender's resulting partnership with Veedims produced more then a unique screen it created a revolutionary monitoring and control system.

Veedims provided:

- A fully *Digital Control & Monitoring* system
- A true *Glass Cockpit* controlling all aspects of the boat
- The *Elimination* of all *Physical Switches*
- The *Elimination* of *Manual Circuit Breakers, Fuses* and *Relays* providing a more reliable and fault tolerant system
- *66% Reduction in Connections* contributing to less points of failure and corrosion
- The *Elimination* of *Complex Wire Harnesses*
- The *Reduction* of *Physical Wiring* leading to *Reduced Weight*
- *Plug & Run™* technology allowing for *Instant Change* and *Reconfigurations* of components
- The ability to *Monitor* all *Electrical, Mechanical* components plus the *Engines*
- A *Vhistorian* (Black Box) that *Collects* thousands of *Data Points* of operational information providing a historical view of the boat from first launch to sale contributing to *Higher Resale Values*
- Remote *iPad* and *iPhone Monitoring* and *Control* of the boat
- *MyContender.com* the first social network joining the Builder, Dealer, Buyer, and Boat into a customized, interactive and a very personal relationship providing for better customer support, greater savings and *Loyal Boat Owners*

Copyright ©2013 VEEDIMS™. All rights reserved. The word VEEDIMS and the stylized VEEDIMS Logo are trademarks of VEEDIMS LLC. The VEEDIMS technology is Patented and Patent Pending. Trademarks, Copyrights and Patents of third parties are owned by the respective third parties.

The Life of PI in a Veedimized Boat

"Veedims takes vehicle automation to a new level of simplicity and capability by leveraging the PI System for monitoring and analytics. Customers and fleet operators love the control, the intuitive user experience, and the analytics provided by the PI System and Vfleet to increase reliability and safety"

Tony Fenn
VEEDIMS LLC

Business Challenge

- Vehicle electronics are already complex, so how to add automation and monitoring without adding complication ?
- How to roll out across a fleet as the integration and support is huge ?

Solution

- A Plug and Run vehicle control and fleet monitoring system
- Designed and implemented bottom-up in the Iconic roadster
- Deployed and hardened in the Cigarette and Contender boats

Results and Benefits

- A dramatic decrease in complexity, cost and deployment time of automation and fleet monitoring in any type of high value mobile asset

© Copyright 2013 OSIsoft, LLC.

Tony Fenn

tfenn@veedims.com

Director Systems Engineering

VEEDIMS, LLC

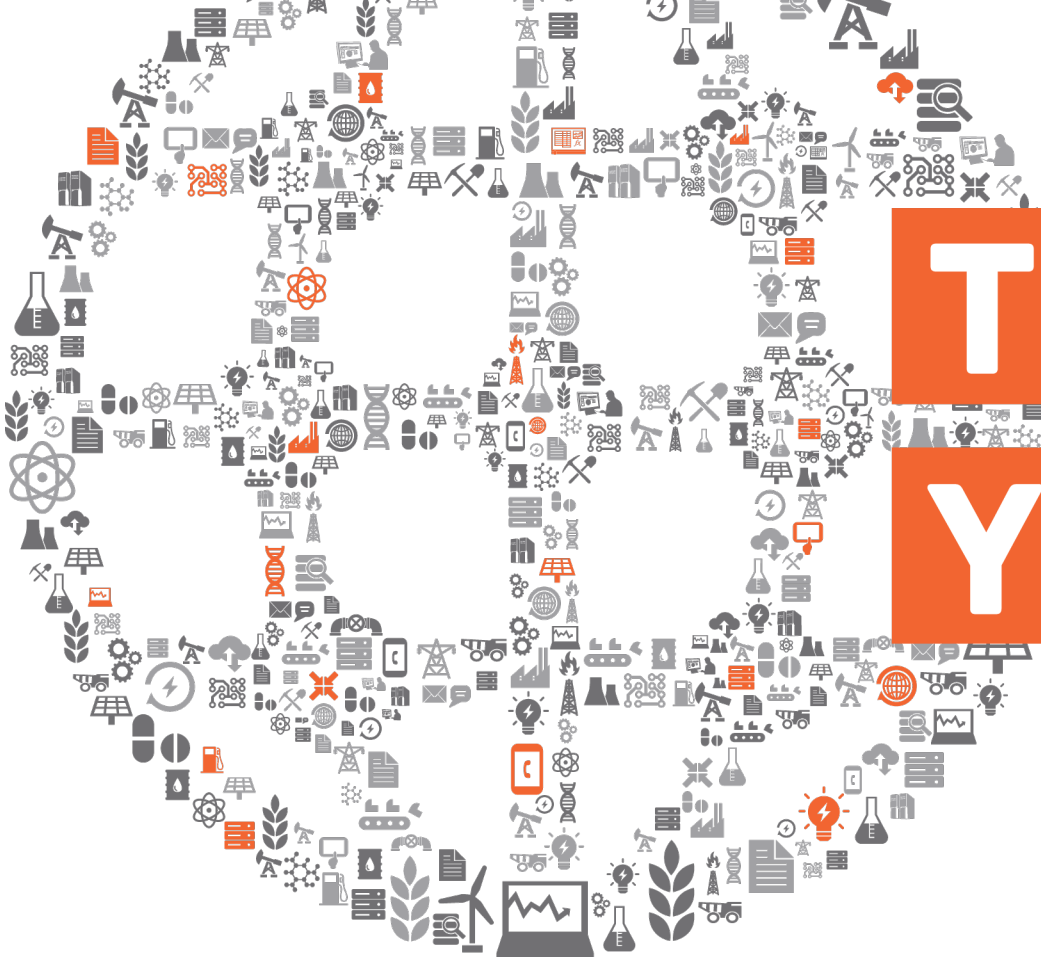
VEEDIMS Platform – Powering Intelligent Automation

POWERING – Providing managed electricity

INTELLIGENT – Integrating power and data to produce smart devices

AUTOMATION – Harnessing power and data to manage, monitor and optimize

Copyright© 2007-2013 VEEDIMS, LLC. All Rights Reserved. The word "VEEDIMS" and the stylized VEEDIMS logo are trademarks of VEEDIMS, LLC. The VEEDIMS technology is patented and patent pending. This document contains proprietary and confidential information, which are the exclusive property of VEEDIMS, LLC. Unauthorized use of this or any document, marked confidential is strictly prohibited.



THANK YOU

Brought to you by

OSIsoft.

© Copyright 2013 OSIsoft, LLC.