STW's Connectivity Solution for Mobile Equipment: The Vehicle Data System (VDS) and VDS-Remote (VDS-R)
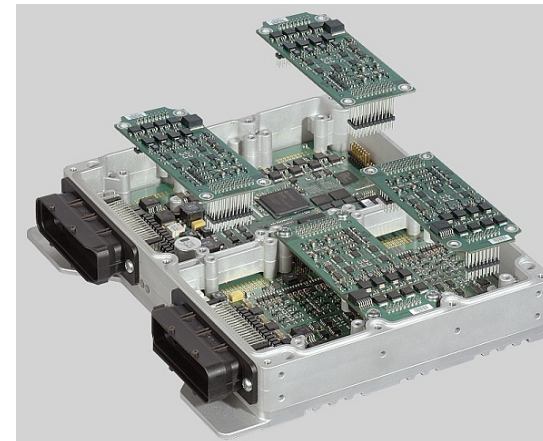
STW's Vehicle Data System (VDS)

- Integrated hardware and software telematics architecture to enable flexible access to vehicle data

- Web-based configuration, monitoring and logging

- Out-of-the-box functionality for rapid implementation

- Powerful toolset for user applications or customization

- Multiple networking options – Local and Remote Modes!

- Real-time monitoring or event-based logging

- Perfect as a front-end for OEM- or fleet-customized back-end solutions

- Designed for difficult, demanding environments

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VDS Hardware Architecture

- Full stand-alone Telematics: ESX-TC3G
  - Local networking: Ethernet, CAN, USB, RS232 <u>PLUS</u>
  - GPS, GSM/CDMA, WLAN or Bluetooth with internal or external antennas
  - 400 MHz Processor with Linux and 1 GB flash
- Controller Networking – Eb07 Babyboard for ESX-3XL
  - Same as the ESX-TC3G without the modems/antennas
  - Accessible directly from the controller with CoDeSys or C functions

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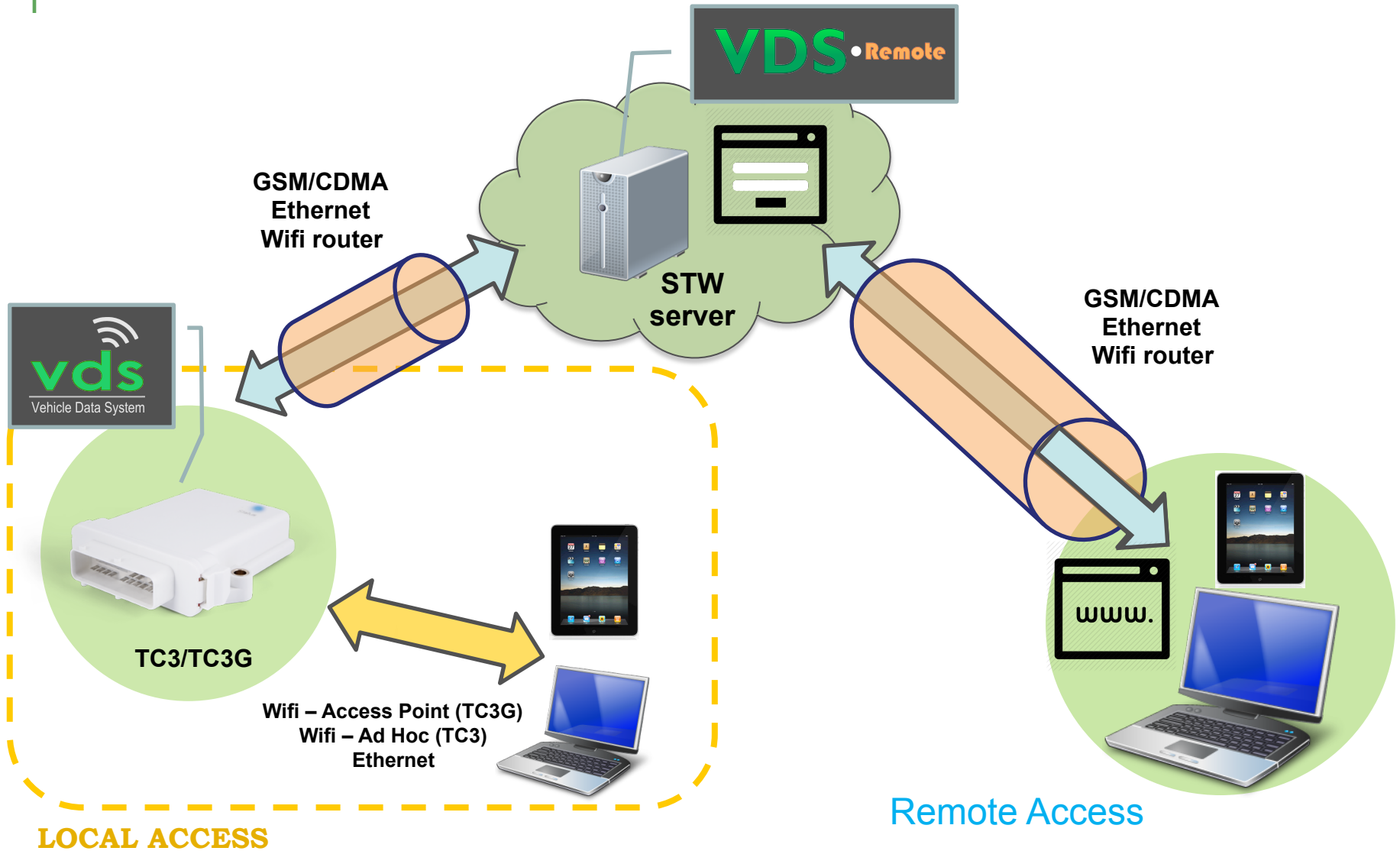
3

Two Ways to Access Vehicle Data

- ## VDS Local
  - Wireless host access at the TC3 or TC3G
  - TC3 or TC3G is a wireless client to a wifi router
  - Any web browser capable device (tablet, PC, phone, etc.) can access
  - Traffic does NOT go through a server! No cellular data plan required

- ## VDS Remote
  - TC3 or TC3G is accessed through a server
  - Same functionality as local except for addition of Administration functions
  - Requires a cellular connection unless the TC3G or TC3 is connected to the Internet locally
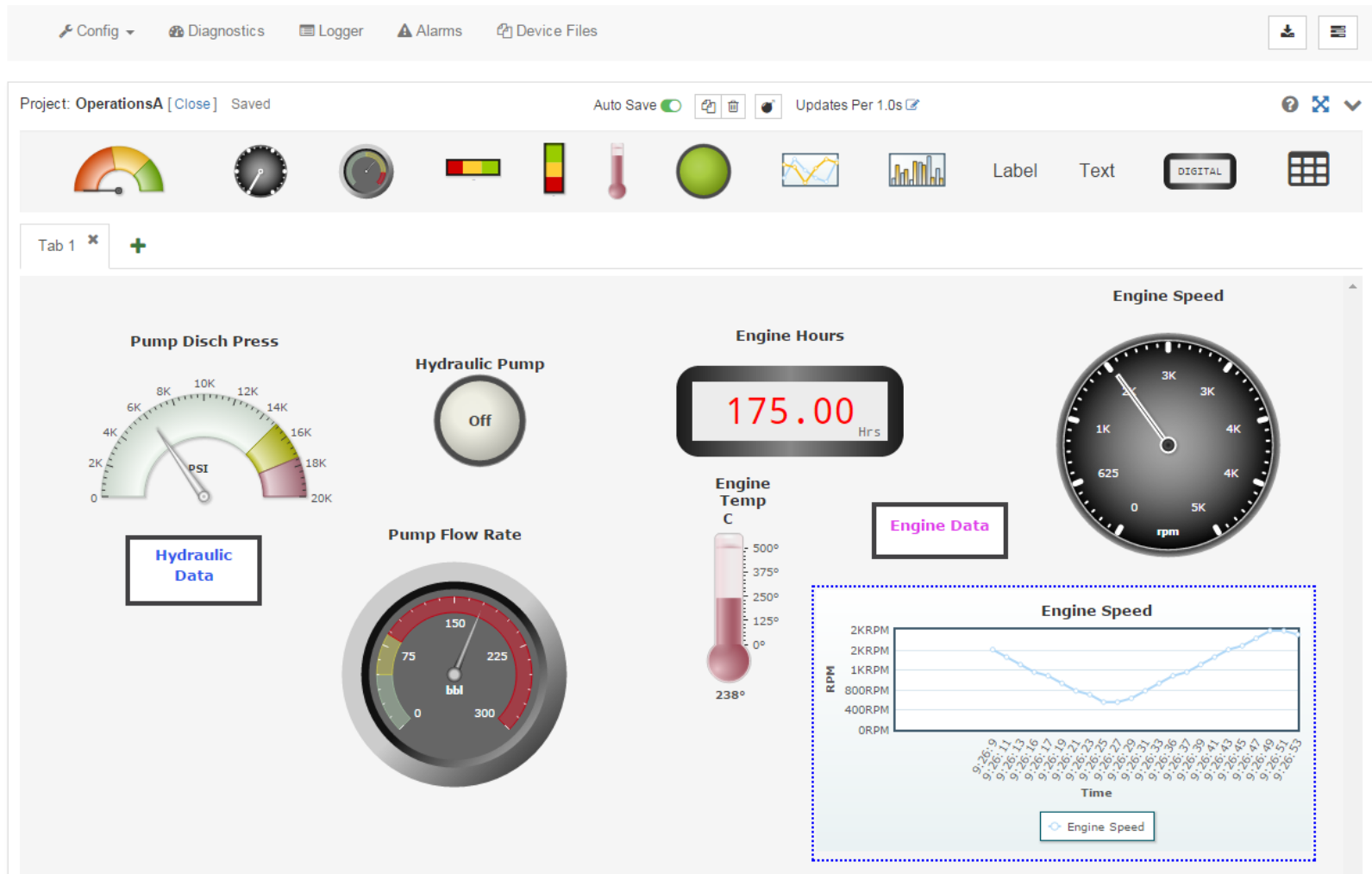
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VDS Network Connectivity

GSM/CDMA
Ethernet
Wifi router

STW server

VDS
Vehicle Data System

TC3/TC3G

Wifi – Access Point (TC3G)
Wifi – Ad Hoc (TC3)
Ethernet

LOCAL ACCESS

GSM/CDMA
Ethernet
Wifi router

www.

Remote Access

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Diagnostics 'projects' are simple to create and configure and provide unlimited views of real-time data with a wide variety of visualization graphics

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Asset location is displayed along with basic information about the machine on Google maps. Devices can be accessed via the map or from a list.

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Logs can be generated for any number of variables and with a wide variety of parameters. On-change and event-triggered logs allow memory and bandwidth resources to be conserved.

Dashboard / All Devices / Vehicle 100

Config ▾   Diagnostics   Logger   ⚠ Alarms   Device Files

Log Job List   +

LoggerJob

LoggerJob configuration

Timestamp	OFF
Max file size (bytes)	1000000
File format	EXCEL TAB
Result file path	/mnt/dataflash/logger
Log duration (minutes)	2
Compression	OFF
Log type	INTERVAL
Log rate(ms)	500
Window log time (sec)	0

Selected variables

EngineOilPress

EngineTemp

HydPumpOn

EngineTempAlarm

✎ edit   ✖ delete

Save to Device

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Data readers are used to access data on the vehicle's CAN bus. Configuring them is easy and fast, but with full flexibility.

Dashboard / All Devices / Vehicle 100

🔧 Config ▾   🚗 Diagnostics   📧 Logger   ⚠ Alarms   📑 Device Files

CAN   CANopen   J1939   Modbus

Active SPN List	✎
EngineSpeed - 190	
EngineOilPressure - 100	
EngineCoolantTemperature - 110	
EngineCoolantLevel - 111	
MalfunctionIndicatorLamp - 1213	
EngineFuelRate - 183	
EngineTotalRevolutions - 249	
EngineOilLevel - 98	

SPN 190 configuration

PGN Relation	EEC1 - 61444
SPN Name	EngineSpeed
Start bit	24
Length	16
Scaling	0.125
Offset	0
Max value	8031.875
Units	rpm

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Logs, configuration files, logos and software updates can all be uploaded or downloaded through the Device Files page.

Dashboard / All Devices / Vehicle 100

| 🔧 Config ▾ | 🖧 Diagnostics | 🖳 Logger | ⚠ Alarms | 🗂 Device Files |

File list
LoggerFiles
CANopenFiles
DBC Files
AppLogs
HexFiles
DiagProjects
ReaderConfigs
VDSLogo

☐ Select All

File Name	Size	Timestamp
☐ LoggerJob_20150716130304_20150716130505.dlf	3.4 kB	Thu Jul 16 13:05:05 2015
☐ LoggerJob_20150716130505_20150716130706.dlf	3.4 kB	Thu Jul 16 13:07:06 2015
☐ LoggerJob_20150716130706_20150716130907.dlf	3.4 kB	Thu Jul 16 13:09:07 2015
☐ LoggerJob_20150716130907_20150716131108.dlf	3.4 kB	Thu Jul 16 13:11:08 2015
☐ LoggerJob_20150716131108_20150716131309.dlf	3.4 kB	Thu Jul 16 13:13:09 2015
☐ LoggerJob_20150716131309_20150716131510.dlf	3.4 kB	Thu Jul 16 13:15:10 2015
☐ LoggerJob_20150716131510_20150716131711.dlf	3.4 kB	Thu Jul 16 13:17:11 2015
☐ LoggerJob_20150716131711_20150716131912.dlf	3.4 kB	Thu Jul 16 13:19:12 2015
☐ LoggerJob_20150716131912_20150716132113.dlf	3.4 kB	Thu Jul 16 13:21:13 2015

⊕ Upload   ⊕ download   ✖ delete

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Administration of VDS-R is incredibly flexible and allows the definition of groups, companies, users, roles, devices and settings.

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Users are assigned a role and may belong to multiple groups and devices.

Administration / Users

| Users | Roles | Role Permissions |

New User

Users

Name ⬍	Email ⬍	Roles Assigned	Groups Assigned	Edit	Delete
John Doe	john@doe.com	Field Test Change	Omega Machines Change	✎	✖
Leo Messi	leo@messi.com	Operations Change	Omega Machines Change	✎	✖

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Roles determine what functions a user may perform on a very granular level

Administration / Users

Users   Roles   Role Permissions

Permissions	Field Test	Operations	Test
general			
access admin page	☐	☐	☐
groups			
create group	☐	☐	☐
edit group	☐	☐	☐
delete group	☐	☐	☐
devices			
create device	☐	☐	☐
edit device	☐	☐	☐
delete device	☐	☐	☐
change device id	☐	☐	☐
device apps			
start apps	☑	☐	☐
stop apps	☑	☐	☐
device configuration			
edit system info	☐	☐	☐
view system info	☐	☐	☐
edit data readers	☑	☐	☐
view data readers	☑	☐	☐

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Questions?

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