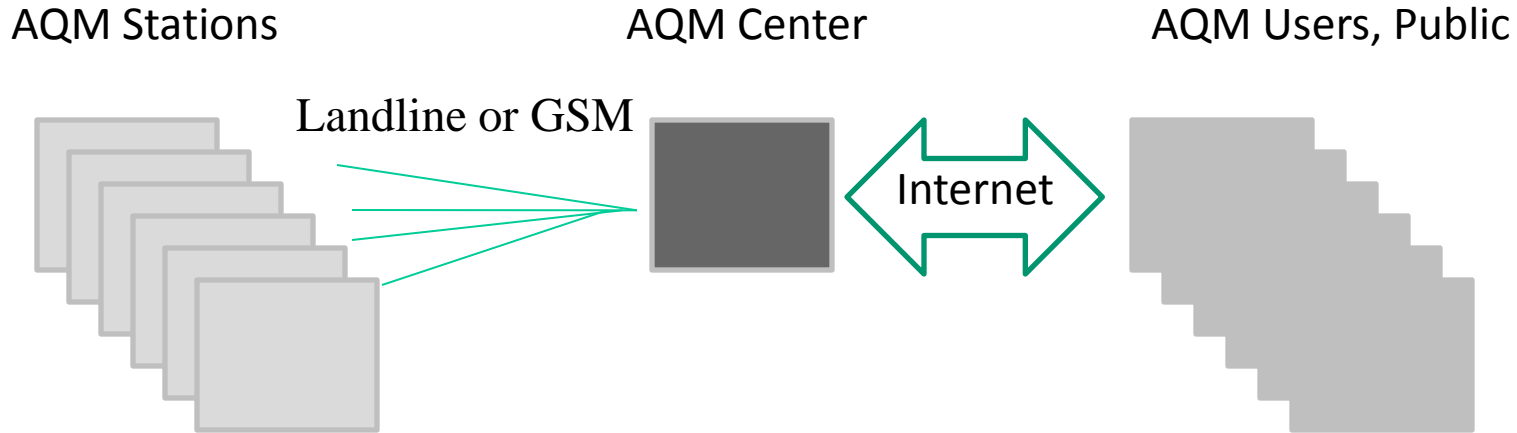


Upgrade your network with DL256LT !



Traditional Network Design

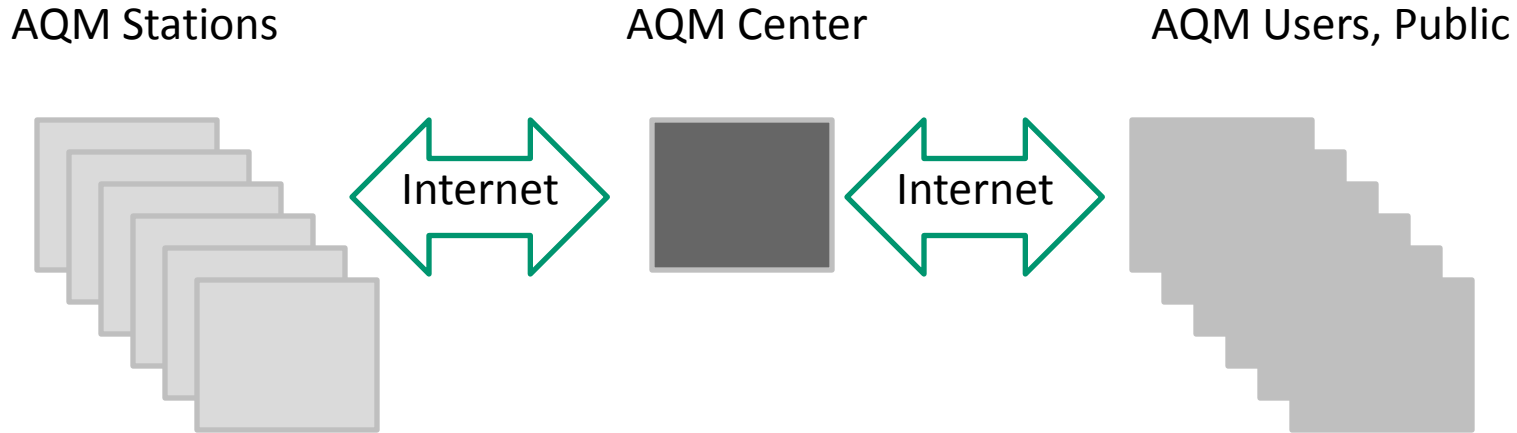


AQM station:
Logger is waiting for AQM
Center to call and request
data

AQM Center software acquire data from Stations
using modem and hourly calls

= high telephone costs , slow update , limited service !

Modern Network Design



AQM station:

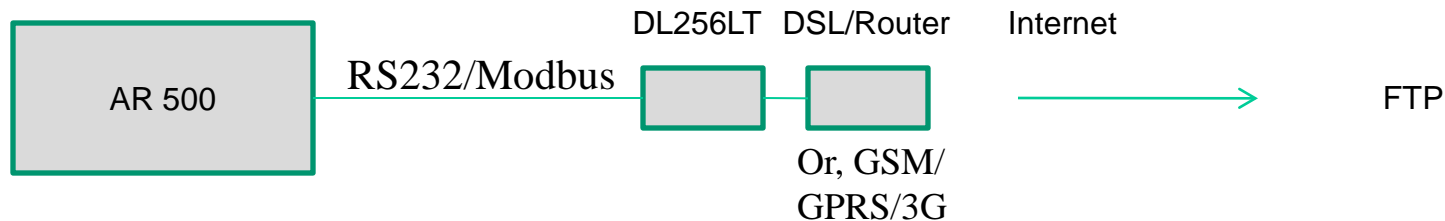
- PC based logger system
- Logger pushing data via FTP to the AQM center
- Logger allowing remote login for service/setup
- Built in HTTP service for direct access to graphs and status

- Data acquired via FTP from monitoring stations
- Validation can be done on 1 minute level
- Fast update time (every minute)
- No "call costs"
- Low subscription costs for GSM/GPRS since data amount is low

=low operational cost , fast response , easy access

Station Design (Opsis)

DL256LT is a logger using an industrial type mini PC and Windows XP Embedded platform (supporting Ethernet LAN, RS232 etc). All data from the Opsis AR500/600 series, LD500 or DL256STD/PRO will be acquired using the Modbus protocol.

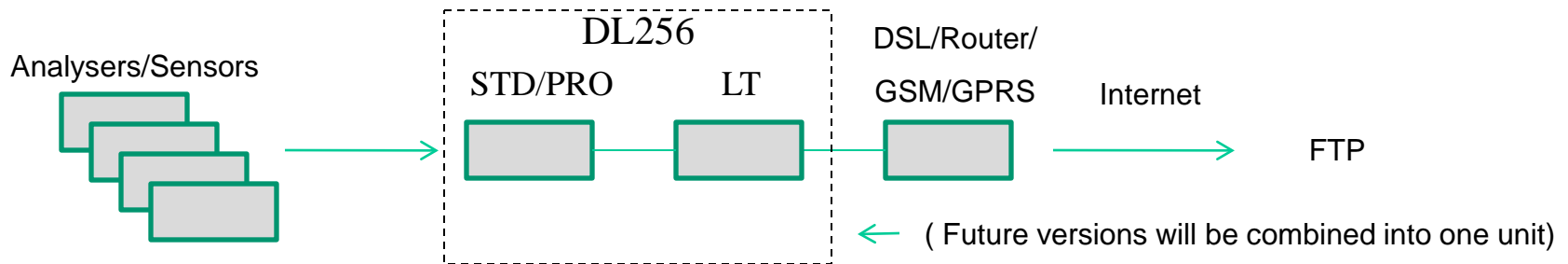


With this solution, any Opsis DOAS or Opsis Datalogger will become "web" friendly

Data will be "pushed" from the station, and remote access to the DL256LT is available via a special client as well as via the Microsoft Remote Desktop Client

Station Design (other brand)

Using the DL256STD or DL256PRO in combination with DL256LT



An Opsis DL256STD or PRO will accept signals from any analyser/sensor, such as 4-20 mA or 0-10 VDC. In addition, the DL256STD/PRO will also accept several kind of communication protocols such as MODBUS, Allen Bradley DH, TEOM, Teledyne API and many more.

With this solution, any conventional station with Opsis Datalogger will become "web" friendly .

Data can be "pushed" from the station, and remote access is available if the DL256LT has been set-up with a valid IP-address and allows access through the internal firewall.

Data Transfer using DL256LT

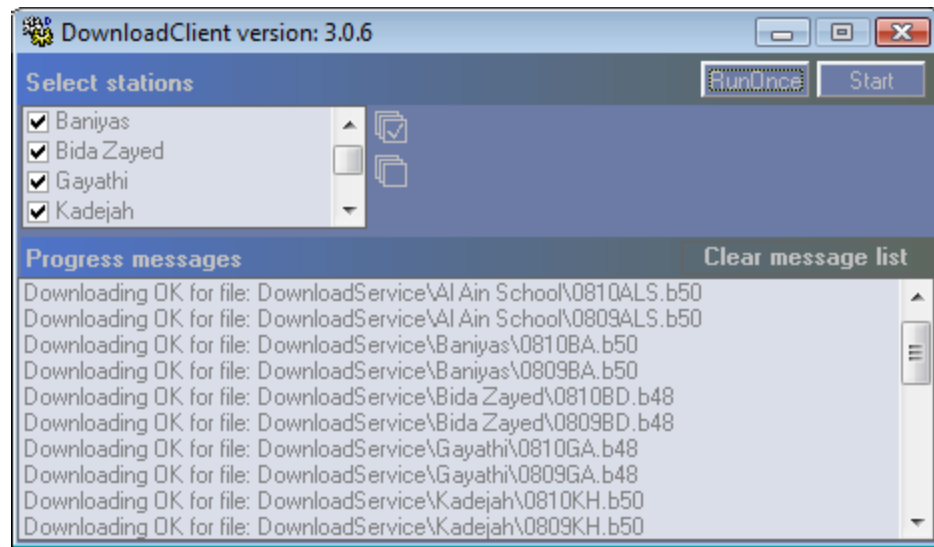
Transfer to **any number** of users

Transfer data from the monitoring stations **every minute**

Data will arrive at the AQM Center **1-2 seconds** after the end of each minute

No matter if there are **200 stations** - all data will arrive within 1-2 seconds

Improved Data Quality by using 1-minute data for primary validation



DL256LT benefits

- A logger based on an industrial PC and Microsoft Windows® XP embedded
- All logger software run as services in the background
- One minute averaging - database storage in the logger (storage capacity in the logger > 25 years of data based on 100 channels and 1 minute storage)
- Digital sampling using serial protocol
- Graphical software for logger set-up
- Set-up the logging remotely via a desktop client software
- Client software for remote real time presentation (every second)
- A built in data transfer service (FTP) for XML-format, charts, database files etc
- A built in web service – retrieve data in XML format or data as charts by requesting data using the standard HTTP-protocol
- Small size, easy to configure and use

DL256 access via DL256Client

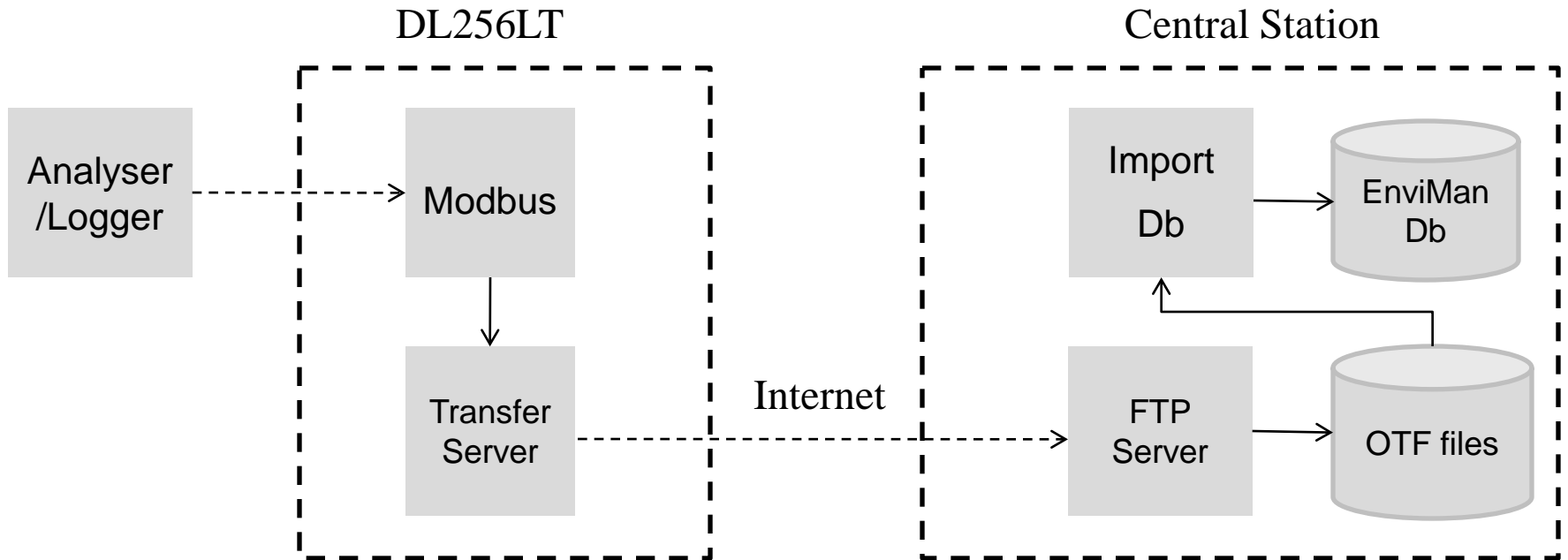
The screenshot displays the DL256 Client interface. The top window shows 'Server settings' with a 'StopServer' button and a 'Disconnect' button. The 'Initfile used' is 'Fataren'. A list of 'Available init files' includes Dalaplan080721, Fataren (selected), FatarenTest, Morriston30m, Sandvik, Snopptorp, Test7017C, and Test7018Z. The bottom window shows real-time data for 12 channels (Unit 0 Ch 0 to Unit 2 Ch 3). Each channel displays its input signal, unit, and various statistics (Mean value, StdDev) along with an 'Active' status.

Unit 0 Ch 0	Unit 0 Ch 1	Unit 0 Ch 2	Unit 0 Ch 3	Unit 0 Ch 4	Unit 0 Ch 5	Unit 0 Ch 6	Unit 0 Ch 7	Unit 0 Ch 8	Unit 1 Ch 0	Unit 2 Ch 0	Unit 2 Ch 3
Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal	Input signal
1.24	7.06	-0.005	568	291	49.0	50.3	51.9	55.5	0	0.340	148
mVolt	mVolt	mVolt	mVolt	mVolt	mVolt	mVolt	mVolt	mVolt	Acc Pulses	Digital	Digital
SkyRad	GlobRad	DiffTemp	Temp	Humidity	TGround70cm	TGround35cm	TGround10cm	TGround1cm	Rain	WSpeed2m	WDir2m
79.0	698	-0.100	16.8	29.1	7.10	8.10	9.40	12.4	0.00	0.34	148
W/m2	W/m2	Celcius	Celcius	%	Celcius	Celcius	Celcius	Celcius	mm	m/s	Degrees
Mean value	Mean value	Mean value	Mean value	Mean value	Mean value	Mean value	Mean value	Mean value	Prev. minute	Mean value	Mean value
-43.8	708.9	-0.339	16.79	30.8	7.08	8.13	9.42	12.41	0.0	0.67	254
StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev	StdDev
59.3	2.6	0.109	0.053	0.6	0.040	0.036	0.030	0.030	-	0.33	75.6
Active	Active	Active	Active	Active	Active	Active	Active	Active	Active	Active	Active

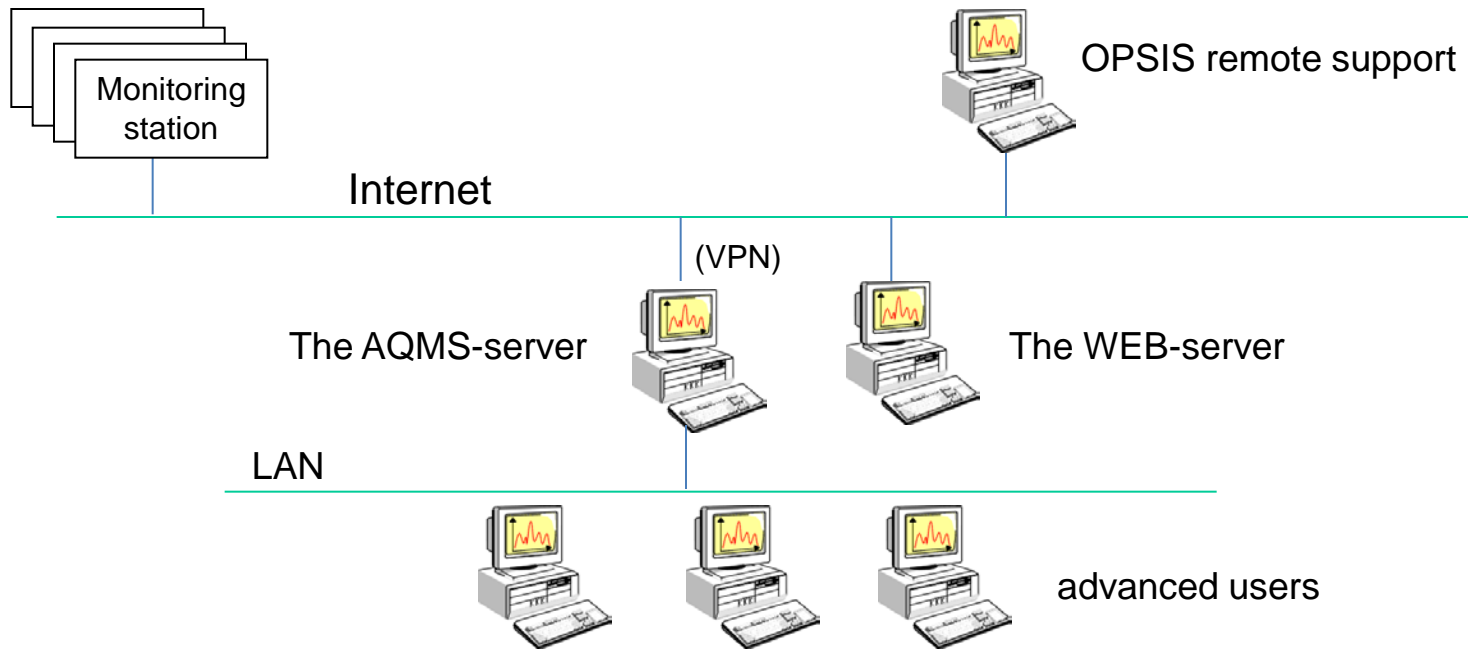
Output Spreadsheet Setup 2009-05-03 13:44:45

- View real time logging
- Change the logger settings
- View second/minute data in a spreadsheet

DL256LT data flow

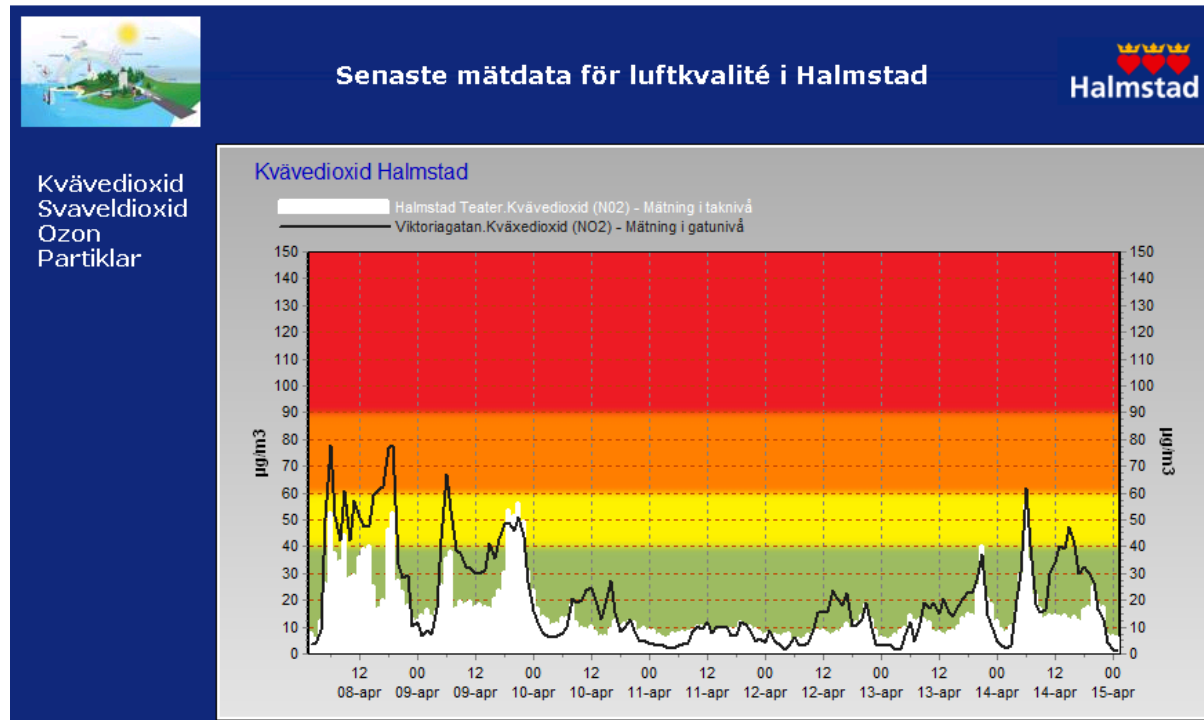


Typical AQM Center design



- The AQMS-server includes all the EnviMan software. All data from the monitoring stations will be received into the AQMS-server via FTP.
- Automatic data import into EnviMan databases - validation of data according to user's set-up
- Automatic generation of reports and graphs using Comvisioner /Reporter and scheduled/distributed to any client using TransferServer (via FTP).
- Advanced users on LAN/WAN/Internet (viaVPN) can logon to the AQMS server using a thin client
- A web-server can be set-up for public presentation, requesting data/graphs etc via the HTTP-service.
- Windows Terminal Server solution (AQMS server)

Public Users Interface



Any user with
Internet access

A web server can be freely designed. Data/graphs can be pushed from the AQMS-server via the TransferServer based on a scheduler. Data can also be accessed from the web-server using the HTTP-services installed in the AQMS-computer.

The HTTP service

Data can be collected from the DL256LT in the traditional way, i.e. using a computer asking for a set of parameters during a given time period.

The difference compared to the common way of doing it, is that we use TCP/IP instead of RS232.

Send a command to the logger and you will receive data within a second. The command is based on the HTTP-protocol, so the service is called an HTTP-service

The following examples demonstrate some of the available items...

NOTE: The same functionality can be set-up in the AQM-server and hence be used for getting data/graphs from all the AQM stations

Ask the logger to transfer data

Command: IPAddress:PortNumber/OPSIData?Resolution=X1&Date=xDateTime&Projection=X2&Station=X3&Parameters=par1,par2,....

Example: <http://212.21.113.97:8080/OPSIData?Resolution=60&Date=NOW&Projection=-168&Station=MorrisonMast&Parameters=1,2,3,4>

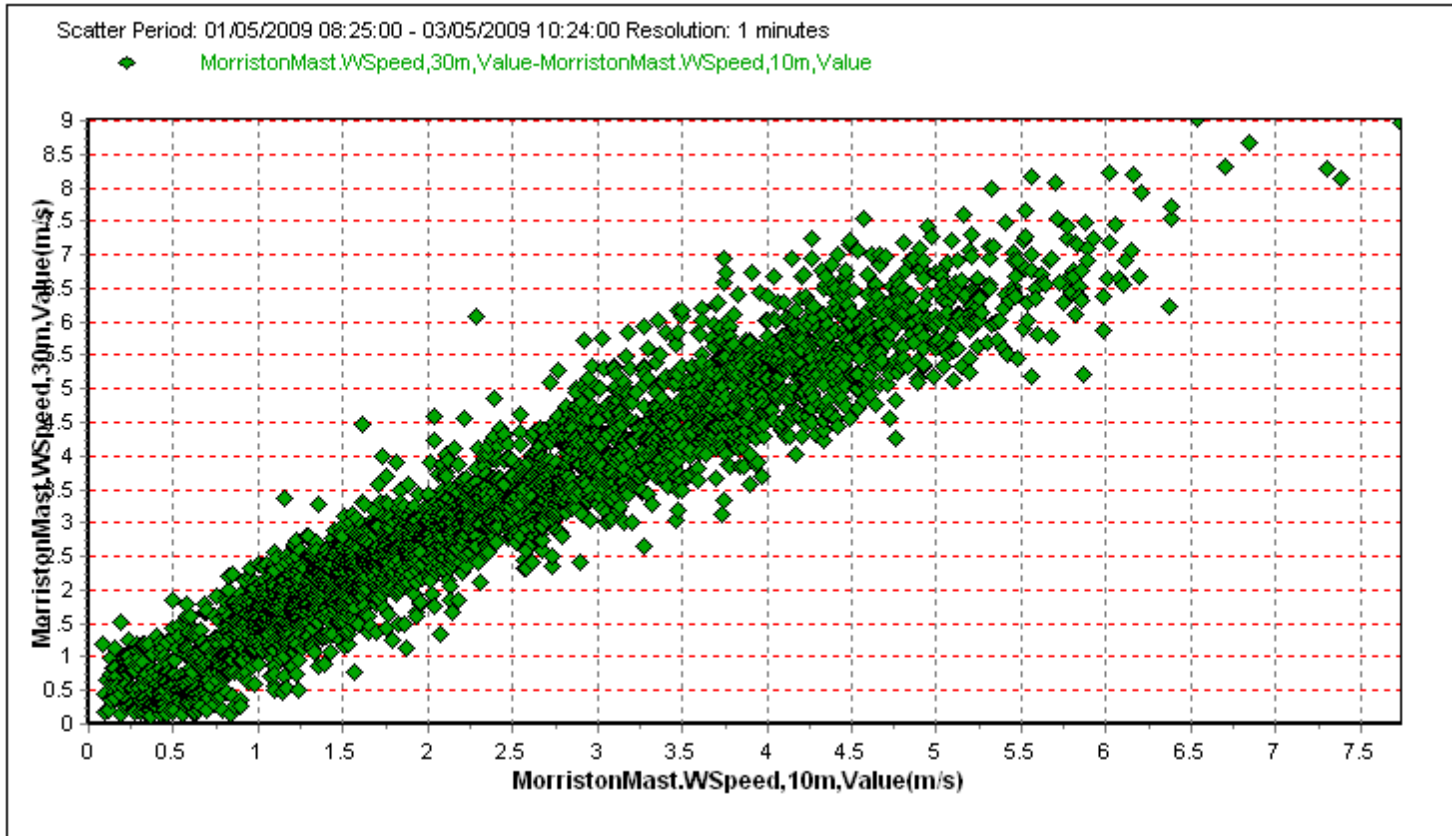
The answer is given in an XML format easy to understand and process...

```
- <OPSIData>
  <SeparatorCharacter>;</SeparatorCharacter>
  <MissingValue>-999;Nullstring;N/A</MissingValue>
  <DateTimeFormat>YYYY-MM-DD HHNN</DateTimeFormat>
  <StationName>MorrisonMast</StationName>
  <ParameterCount>4</ParameterCount>
  <DataRecordCount>168</DataRecordCount>
  <ResolutionInMinutes>60</ResolutionInMinutes>
  <DateTimeDefinition>Forward</DateTimeDefinition>
  <ParameterNames>WSpeed,30m,Value;Wspeed,30m,StdDev;WDir,30m,Value;WDir,30m,StdDev</ParameterNames>
  <ParameterPositionInDatabaseTable>1;2;3;4</ParameterPositionInDatabaseTable>
- <Data>
  <DataRecord No="1" Date="2009-04-26 10:15" Values="4.388951;0.798;124.861;9.644" />
  <DataRecord No="2" Date="2009-04-26 11:15" Values="3.881294;0.694;140.610;9.784" />
  <DataRecord No="3" Date="2009-04-26 12:15" Values="3.725789;0.664;151.004;11.359" />
  <DataRecord No="4" Date="2009-04-26 13:15" Values="3.738455;0.671;149.797;11.444" />
  <DataRecord No="5" Date="2009-04-26 14:15" Values="3.827292;0.702;148.260;11.081" />
  <DataRecord No="6" Date="2009-04-26 15:15" Values="3.467796;0.573;170.073;10.633" />
  <DataRecord No="7" Date="2009-04-26 16:15" Values="2.593807;0.451;225.448;11.624" />
  <DataRecord No="8" Date="2009-04-26 17:15" Values="1.88998;0.359;197.774;17.876" />
  <DataRecord No="9" Date="2009-04-26 18:15" Values="3.376129;0.477;267.246;8.960" />
  <DataRecord No="10" Date="2009-04-26 19:15" Values="3.088971;0.483;271.835;9.594" />
  <DataRecord No="11" Date="2009-04-26 20:15" Values="4.069281;0.605;268.662;8.485" />
  <DataRecord No="12" Date="2009-04-26 21:15" Values="3.018132;0.506;257.086;11.070" />
  <DataRecord No="13" Date="2009-04-26 22:15" Values="2.55347;0.546;225.068;15.171" />
  <DataRecord No="14" Date="2009-04-26 23:15" Values="3.731468;0.734;211.179;12.289" />
  <DataRecord No="15" Date="2009-04-27 00:15" Values="4.359117;0.781;205.074;11.837" />
  <DataRecord No="16" Date="2009-04-27 01:15" Values="5.12128;1.054;204.970;12.422" />
  <DataRecord No="17" Date="2009-04-27 02:15" Values="6.977262;1.452;204.658;12.619" />
  <DataRecord No="18" Date="2009-04-27 03:15" Values="6.901433;1.538;208.667;12.888" />
  <DataRecord No="19" Date="2009-04-27 04:15" Values="4.467947;0.870;252.855;12.548" />
  <DataRecord No="20" Date="2009-04-27 05:15" Values="3.053135;0.578;287.554;14.950" />
```

Ask the logger to transfer a graph

Example: <http://212.21.113.97:8080/OPSISDATAPLOT?Diagram=Scatter&Resolution=1&Date=NOW&Projection=-3000&Panel=Standard&Series1=MorrisonMast.1.0|164|0.Bar.auto.0.1&Series2=MorrisonMast.5.128|0|128.Line.auto.0.0>

You can ask for time series, scatter plots, histograms polar diagrams etc.....
The graph format could be PNG, JPEG, GIF



Finally, remote access/service....

...is solved by simply logging on to the DL256LT. Use the Microsoft Remote Desktop Client to log on to the logger and use the available tools to connect to the instruments.

