Main issues in Remote Monitoring and Control Projects

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- **Finnish automation manufacturer company**

- **AutoLog RTU Series (TETRA, GSM, TCP/IP, RF...)**

- **Autolog® designer and manufacturer since 1976**
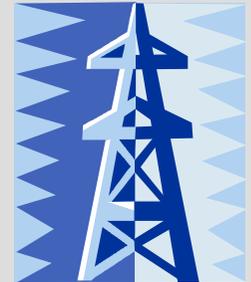
Main issues in Remote Monitoring and Control Projects

FF-Automation's point of view

• **Overall reliability**

• **Open technology**

• **Effective maintenance**

• **Network coverage**

• **Web SCADA**

• **Long life span**

Overall reliability

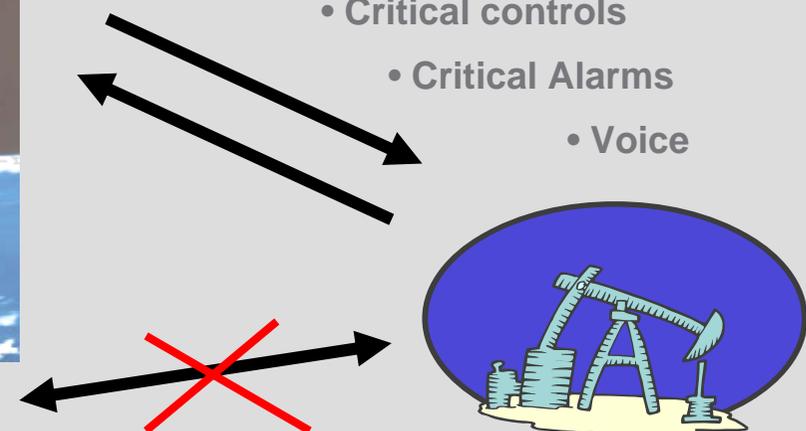• **Critical controls and alarms using backup communication technology**

THURAYA

•**Backup HMI**
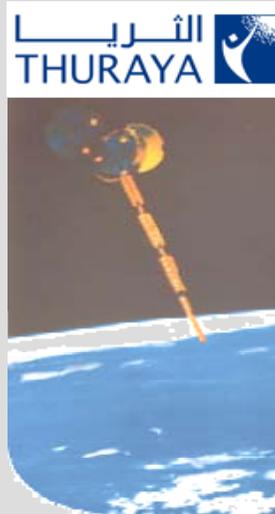
• **Backup network (e.g. TETRA, GSM)**

• **Critical controls**

• **Critical Alarms**

• **Voice**

• **Primary HMI**

• **Primary network**

• **High bandwidth**

• **Open technology (e.g. TCP/IP based)**

• **Data, Video, Voice...**

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Open Technology

• **Technology should allow different technical solutions**

• **Technology should have interfaces to open mainstream standards**

Remote Terminal Unit

• **Changeable I/O modules**

• **Ethernet**

• **Serial**

•**Wireless I/O**

• **Support for open protocols**

• **TCP/IP**

SCADA

Databases

• **GSM / GPRS**

ERP

MRP

CRP

• **TETRA**

...

• **Future tech?**

• **RS232**
•**RS485**

• **WiMAX**

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Effective maintenance

• **Automatic complete system diagnostics and diagnostic alarms**

• **Automatic alarm forwarding to maintenance personnel mobile phone**

• **Remote "software" maintenance task from mobile or Control software**
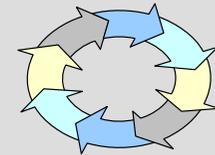
• **Maintenance history report database**

1 System Failure

6 Maintenance report to database

2 Automatic diagnostics

5 On site maintenance

4 Remote maintenance Tasks

3 Alarm to mobile
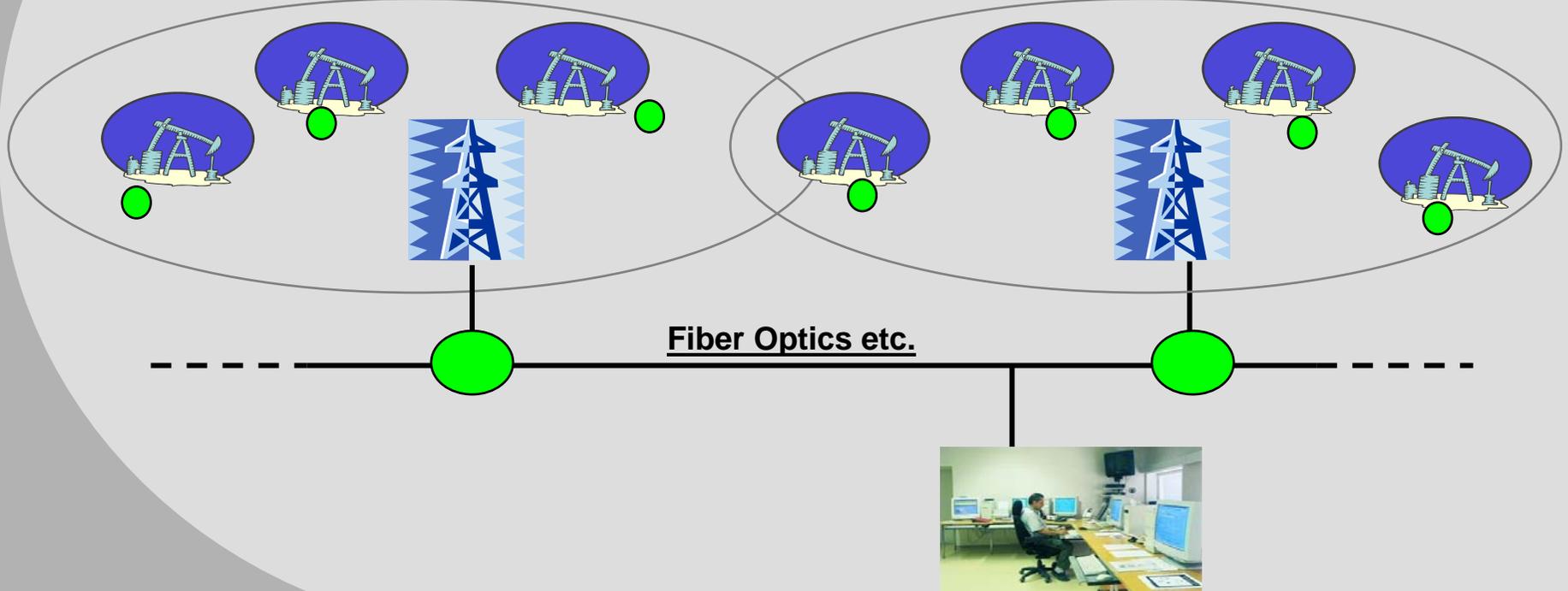
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Network coverage 1

• **Network coverage can be extended using different technologies together**
• **Local collector stations can speed up the overall polling cycle time**

Wireless Network 1

Wireless Network 2

**Fiber Optics etc.**

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Network coverage 2

- **Network coverage can be extended using <u>intelligent repeaters</u>**

<u>Repeater Network 2</u>

<u>Repeater Network 1</u>

<u>Wireless Network</u>

<u>Fiber Optics etc.</u>

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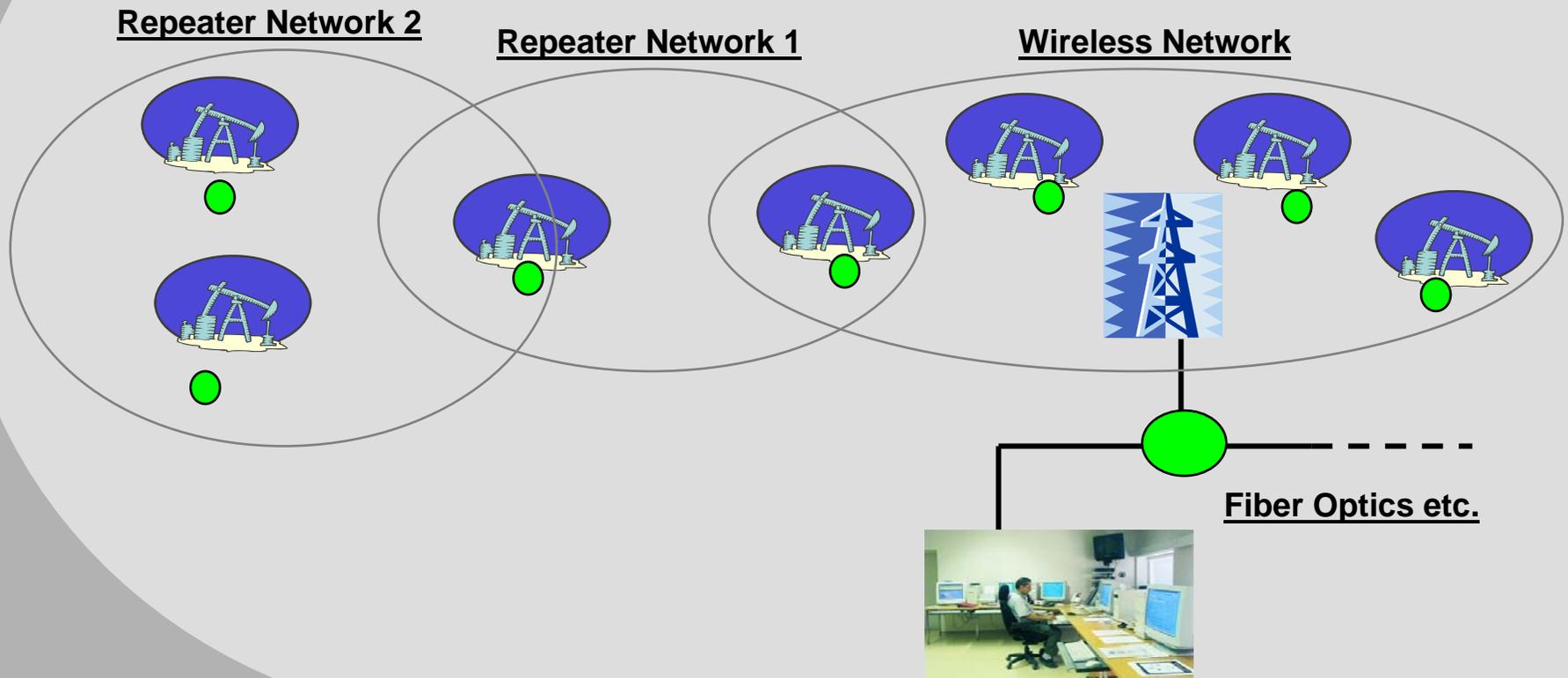
Network coverage 3

- **Local I/O network can be extended using <u>wireless I/O network</u>**

  - **Wireless I/O can be used also in Exi (ATEX) areas**

<u>Wireless I/O Network</u>

<u>Fiber Optics etc.</u>
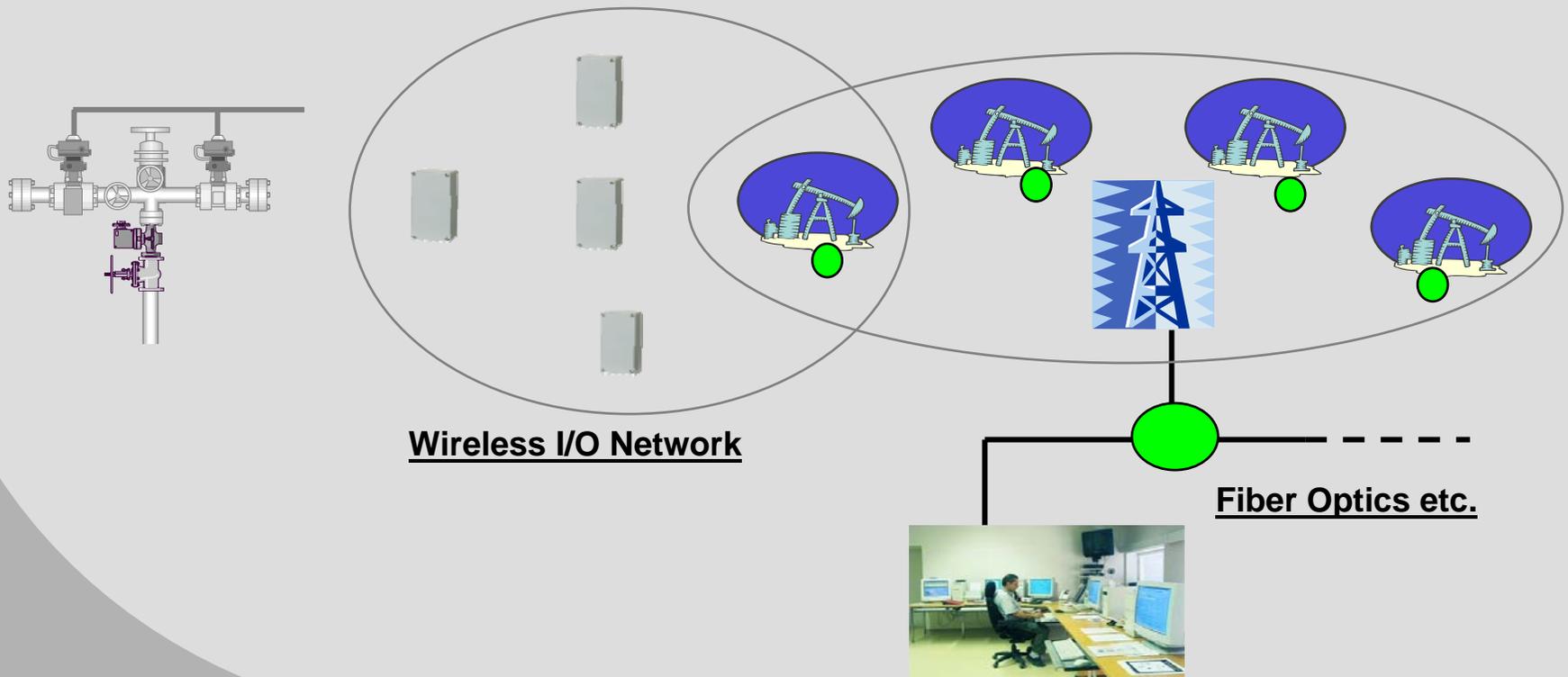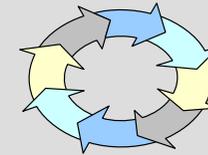
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<u>Advanced Features 1 : History reading</u>

• **In case of communication failure, RTU stores and time-stamps
all measurement data into its memory**
• **After communication break this data can be read automatically or manually
to Control room SCADA to fill the measurement data cab.**

1 <u>Communication Failure starts</u>

2 <u>Data is stored to RTUs memory</u>

5 <u>Data can be analyzed in SCADA</u>

3 <u>Communication Failure stops</u>

4 <u>Stored data is automatically read to Control room SCADA</u>

Advanced Features 2 : Redundant RTU

In critical applications system reliability can be increased using redundant RTU.

In case of any detected hardware or software failure in RTU, the automatic switching between standby and active RTU is done.

Switching can be done also manually from control room.

System redundancy can be also include network and SCADA server redundancy.

Web SCADA

- **Easy and cost effective way to share the Main control room views to all participants in company network.**

-**Based on web thin client technology**

- **Easy Maintenance**

- **Multi-level user rights**

-**Firewall IP security**

• **INTRANET**
•**LAN / WAN**

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Long life span

- **Reliable technology**

-**System is based on open mainstream standards and interfaces**

- **Easy and cost effective Expandability of I/O, RTUs, SCADA etc.**

-**Guaranteed spare parts and support**

-**Effective maintenance**

- **Good documentation and training**

THANK YOU!

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