# Web-based experiments in ELI Beamlines

## **Shoutout to WebJive!**

- Some of our scientists really love it
- Experimenting with rete.js (Demo without DB)
- Enhanced Status Page (Demo)
- Experiments with LabVIEW NXG (Demo)
- OPC-UA over TSN: Is anyone else experimenting with this?

## WebJive is used as on the fly monitoring dashboard

"I want to monitor a few attributes and a big thing should go red if something changes"

Some higher degree of dynamic work needed:

- Compare with values
- Limited sequencing: Experiment: rete.js (GraphQL) <u>https://rete.js.org/</u>



# **Enhanced status webpage**

### Started with Cachet.io for operational support

- Useful for automated and manual integration "Central Vacuum is down, people are working on it and we'll let you know when it's back"
- But: Has an API so you can set things automatically
- Never meant to grow into a real project 🙂

Some things added automatically, some manually "Internet of random subsystems" – not necessarily TANGO / CS, but also IT systems (ERP, WiFi, ..), Cleanroom status, building management,..

L birgit.ploetzeneder System Mod ∧			
Role Change: <b>I</b> I I II	⊖ Infrastructure		
Report an incident	i 🖡 Power	Ū 28-05-2020 13:29:18	🔿 Unknown 💿 Operational 🔿 Maintenance Required 🔿 Partial Outage 🔿 Major Outage
Notify emergency team	Active Power Consumption	10-06-2020 15:10:32	222.92 kWh
	Frequency	3 10-06-2020 15:10:32	49.982 Hz
	Current (Average 10s)	3 10-06-2020 15:10:32	316.08 A
Dashboard	Voltage (LL, Average 10s)	0 10-06-2020 15:10:32	414.34 V
(i) Incidents 0 135	Voltage (LN, Average 10s)	তি 10-06-2020 15:10:32	239.23 V

Opened "Pandoras Box" : A defined, safe way to add random technical subsystems and create arbitrary useful presentations (web page / dashboard, email, SMS)

# **General overview page**



## Important use case: "Emergency Responders"

L birgit.ploetzeneder System Mod ∧ Role Change: LL±∞	Individual Responders	Ð	Response groups
	Fabula Peter	/ 📋	Water Leaks 🔊 WATER 💉 📋
Report an incident	J 702196548		Peter Fabula, Václav Knechtl, Petr Krška, Roman Kuratko,      František Durnach Michael Dutir, Zdanak Clavilk, Liber Tiral, Dirait
Notify emergency team	Horalek Radek J 737513162	/ 📋	Ploetzeneder,
	Knechtl Václav J 727874449	/ 💼	<ul> <li>Automatic Notifications:</li> <li>Water Leak: Exp Plant Room - E1/L1 Nest (Leak Detection)</li> <li>Water Leak: Exp Plant Room - E2 (L2 Nest (Leak Detection)</li> </ul>
⑦ Dashboard	<b>Krška Petr</b> ✔ 601386154	/ =	<ul> <li>Water Leak: Exp Plant Room - E3/L3 Nest (Leak Detection)</li> <li>Water Leak: Exp Plant Room - E4/L4c Nest (Leak Detection)</li> <li>Water Leak: Exp Plant Room - Floor (Leak Detection)</li> <li>Water Leak: Exp Plant Room - Floor (Leak Detection)</li> </ul>
	Kuratko Roman ♪ 724226056	/ 📋	<ul> <li>Water Leak: Support Plant Room - L2 Nest (Leak Detection)</li> <li>Water Leak: Support Plant Room - L3 Nest (Leak Detection)</li> <li>Water Leak: E1 (Leak Detection)</li> </ul>
<ul> <li>Hall Activities</li> <li>Emergency Responders</li> </ul>	Naylon Jack ✔ 608360333	/ 🕯	<ul> <li>Water Leak: Osmosis + HVAC Room (Leak Detection)</li> <li>Water Leak: Laser Plant Room - Floor 1 (Leak Detection)</li> <li>Water Leak: Laser Plant Room - Floor 2 (Leak Detection)</li> </ul>
	Ploetzeneder Birgit	/ 📋	
Power     User Accounts	<ul> <li>✓ 735773372</li> <li>Purnoch František</li> <li>✓ 725976470</li> </ul>	/ 💼	Server Room Outages SERVER / The server Room Outages SERVER / The server Room Outages / The serv
Components  6	Rytír Michal J 722928292	/ 📋	<ul> <li>Automatic Notifications:</li> <li>Server Room (Infrastructure)</li> <li>Cooling System (Cold Isle) (Server Room)</li> </ul>
	Slavík Zdenek J 721337959	/ 📋	<ul> <li>Electricity (Server Room)</li> <li>Main Server Infrastructure (Server Room)</li> <li>CS Network (Server Room)</li> </ul>
	Tirol Libor		

#### EMERGENCY RESPONDERS > Edit group

#### Group Name

Water Leaks

Text Message Code

#### WATER

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#### People who should be notified

Fabula Peter × Knechtl Václav × Krška Petr × Kuratko Roman × Ploetzeneder Birgit × Purnoch František × Ro Tirol Libor ×

#### Components that should trigger an automatic notification

 Water Leak: Exp Plant Room - Floor (Leak Detection)
 \*
 Water Leak: Exp Plant Room - E1/L1 Nest (Leak Detection)
 \*

 Water Leak: Exp Plant Room - E3/L3 Nest (Leak Detection)
 \*
 Water Leak: Exp Plant Room - E4/L4c Nest (Leak Detection)
 \*

 Water Leak: Support Plant Room - L2 Nest (Leak Detection)
 \*
 Water Leak: Support Plant Room - L3 Nest (Leak Detection)
 \*

 Water Leak: E1 (Leak Detection)
 \*
 Water Leak: Osmosis + HVAC Room (Leak Detection)
 \*

Water Leak: Laser Plant Room - Floor 1 (Leak Detection) \* Water Leak: Laser Plant Room - Floor 2 (Leak Detection) \*



#### EMERGENCY RESPONDERS > Send Notification

#### SMS Message (120 character limit)

SMS Text

#### Email text

I don't even know who should respond to a water leak!

Groups to be notified

Water Leaks ×

Additional individual responders

nobody

#### Send notification

# **Dynamic dashboards** - integrating more than just CS



## **Typical integration pattern:** Push via API Pull via Archiver (1s polling pattern)



Collector

#### Dashboard

- Base App (php+Laravel + some jquery for live values)
- Node.js service to encapsulate non-public API
- Node.js services for SMS gateway
- Node.js services for unintegrated "IoT"

# **Experiments with LabVIEW NXG**

- Compiles to JavaScript based webpage no runtime required !
- Features too low feels like LabVIEW 8.x
- Encapsuled LabVIEW REST API

=>

Don't do it. Watch the technology, but it's too immature, doesn't add value for the use case.

