

Smart Energy

smart management of valuable resources

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VASERControl



Smart building integration platform

All datapoints can seamlessly be integrated

Datapoints of different protocols can be mixed in logic modules, databases, etc.

> 50 protocols

Metering: KNX, KNX-Quick, M-Bus, Modbus, Vbus, ...

Smart home: DMX, DALI, Hue, Zigbee

White Goods: Homeconnect,

Security: eKey, phg, ...

Energy: E3DC (via RS-485), ...

Bayrol Poolmanager, Ospa, ...

Heatpumps – Stiebel-Eltron, Mitsubishi, Intesis (KNX), Zennio (KNX), ...

Multimedia: uPnp, Denon, Revox, ...

IT: SNMP, SMTP, SSDP

Namespaces

Multiple buildings in multiple locations

Visualization

HTML5/CSS3/Javascript/WebSocket/Push

Alarming

eMail, iOS & Android Remote Notification, etc.

VASERControl - Visualization



Smart Buildings and Energy

Database

Log and store datapoints (e. g. power, consumption and energy) in databases

Data Mining

Evaluate data in graphics, spreadsheets and dash boards

Statistics

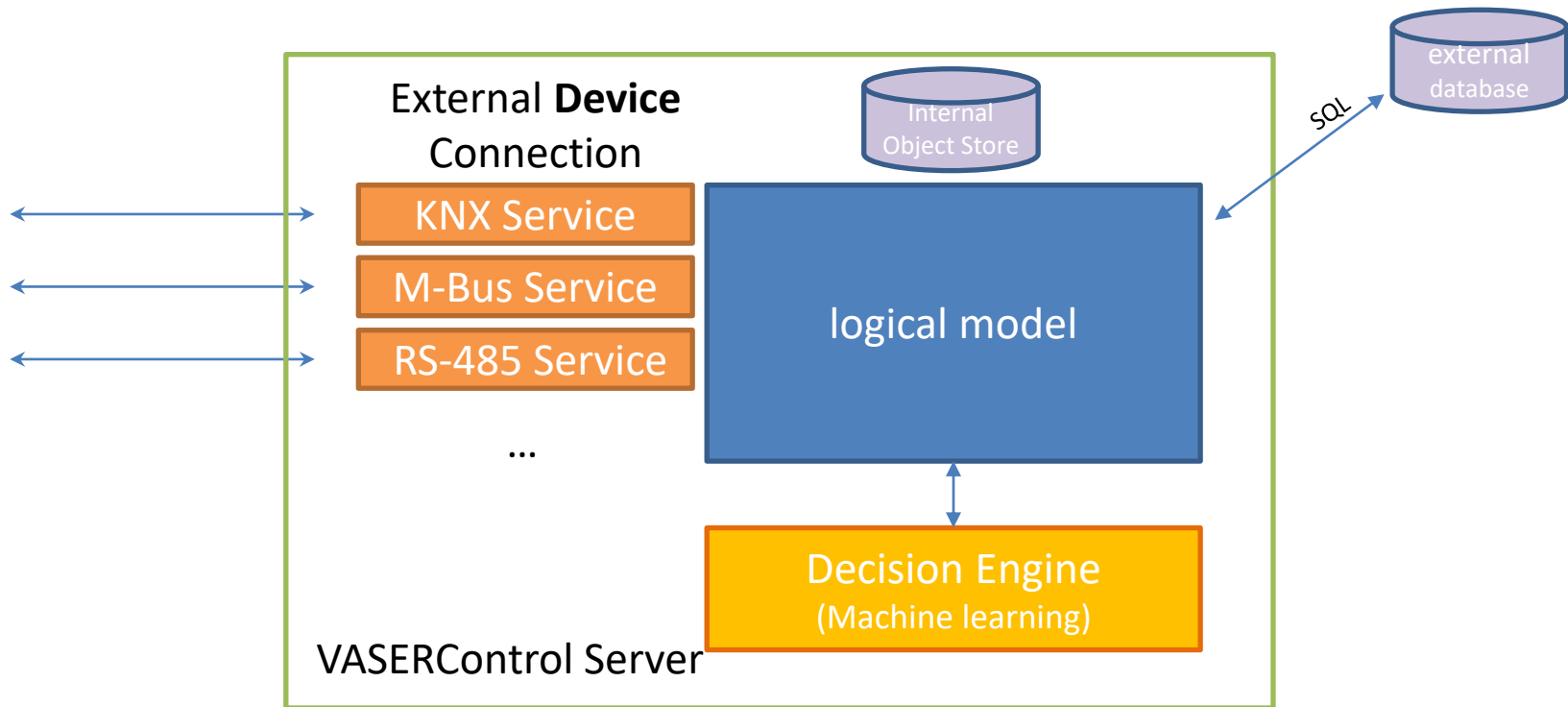
Critical values, Min/Max, Averages

Use Data as decision base

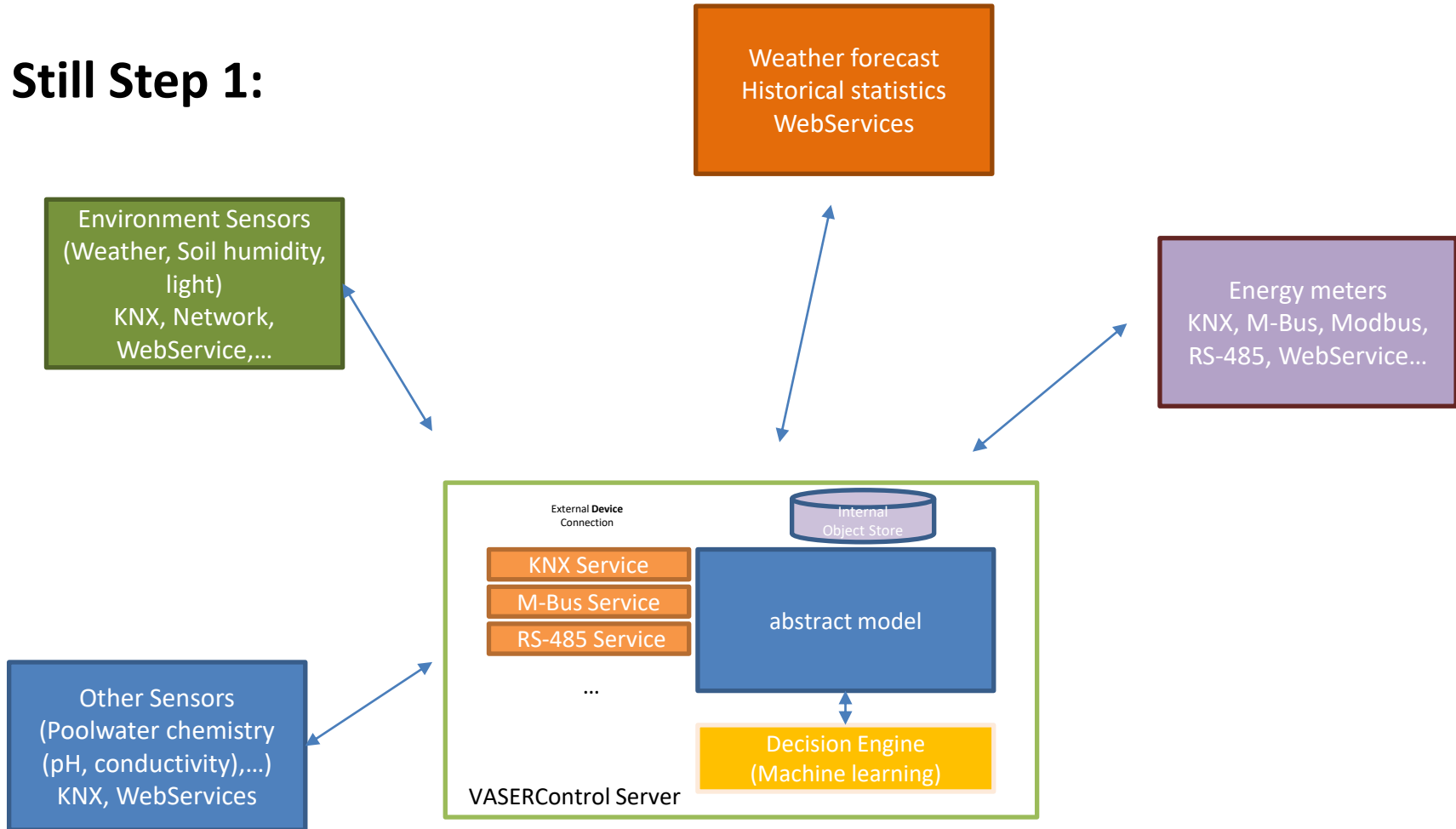
Build decision tables / trees

Define and implement targets

Step 1: Log and store datapoints (e. g. power, consumption and energy) in databases



Still Step 1:



Step 2: Evaluate data in graphics, spreadsheets and dashboards



Step 3: Define and implement resource management

Promise – Object which defines the targets for a consumer

- Car needs to be loaded by 8AM
- 6 hours of poolfiltering and circulation every day

Server intelligence distributes resources to keep all **Promises**

Resource Allocation – Divide resources according to **Promise** priority

Expectation – Verification if **Promises** are kept

e.g. after 6 hours, target temperature should be reached. Responsibility to fulfill promise is delegated to the **Device** object.

Types of requirements

- **Pool disinfection** – 6 hours each day. Independent when
 - Optimize for PV „leftover“, cheap power from grid,....

- **Hot Water disinfection** – Once a week up to 70 degrees
 - Include water solar panels
 - Low priority during the week but high at the end of the week

- **Charge electric car**
 - at least charge for 200km at 8AM in the morning

- **Heatpumps**
 - need to run at least 30 minutes to be efficient

Example: Switching Photovoltaik as Backup for house in case of power outage

Promise: keep currents below a certain limit

Priority	Device
1	IT/Rack/Bus/Control
2	Access Control / Electric doors
3	Emergency Illumination
4	Hot Water Preparation
5	Heating / Cooling
6	Kitchen appliances
7	Multimedia
8	Other important, e.g. Pool Cleaning / Heating
9	Other unimportant e.g. RGB effects in garden

(* depends on project !!

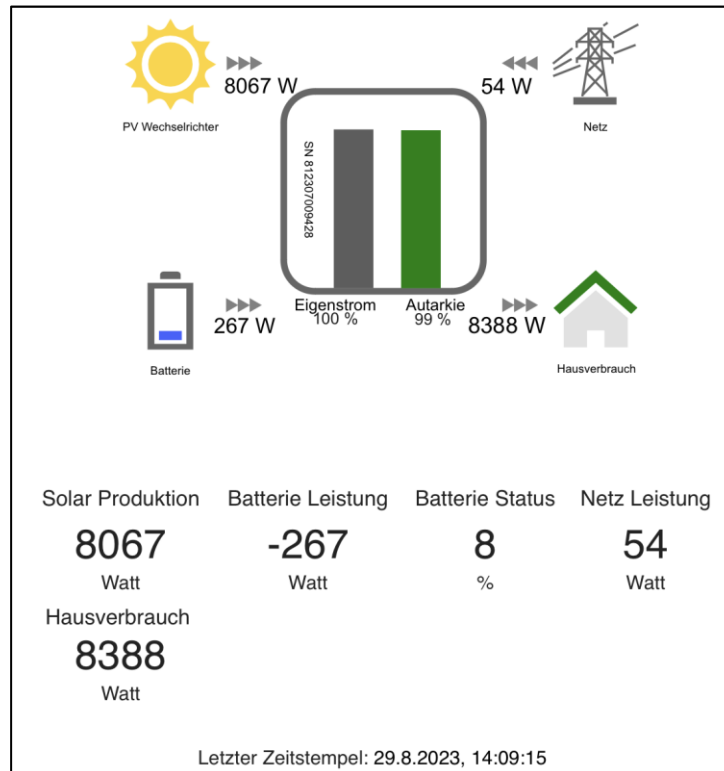
Example: Pool pump & disinfection

Promise – Pool circulation running for at least 6h per day

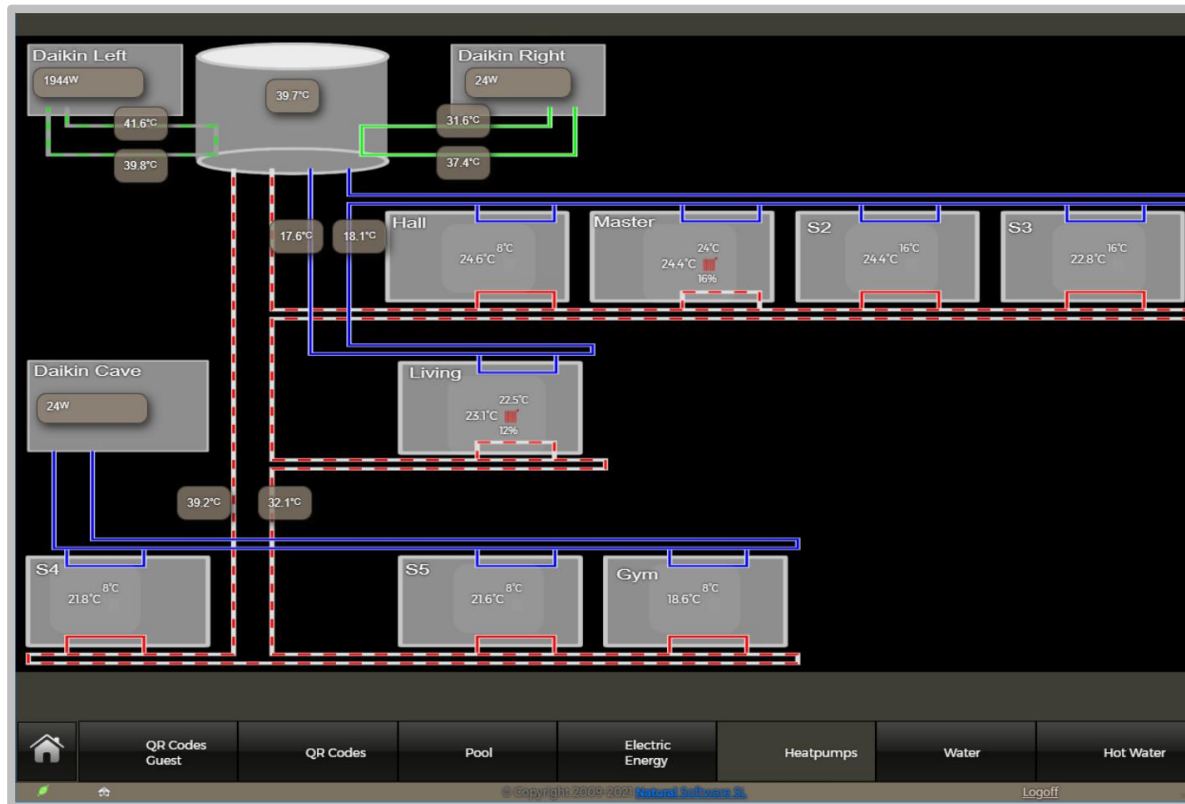
Factors:

- Different electrical prices during day
- Using surplus from photovoltaic
 - Predict output by weather forecast
 - Verify and adapt by comparing reality and forecast

Typical Energy Interface:



Our Energy Interface:



Summary & Goal

Using VASERControl to optimize resource usage

- Get a lot of measure points
 - Temperatures, Water, Electrical, Natural Gas,
- Analyze the values
- Make decision based on recorded values and forecasts

THANK YOU!

For more information

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