

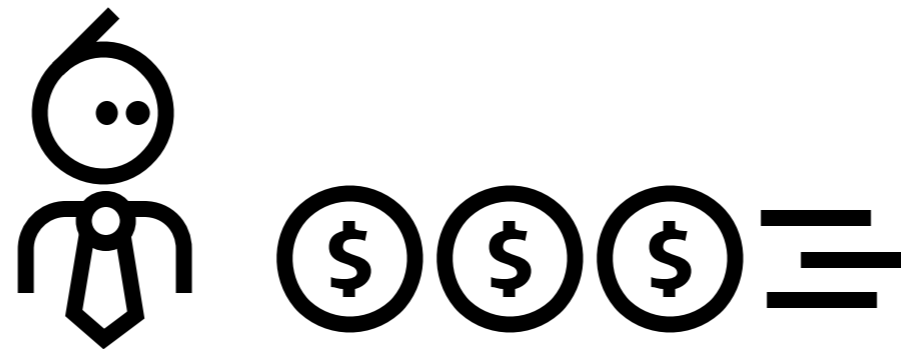
nabto

connect - simple and safe

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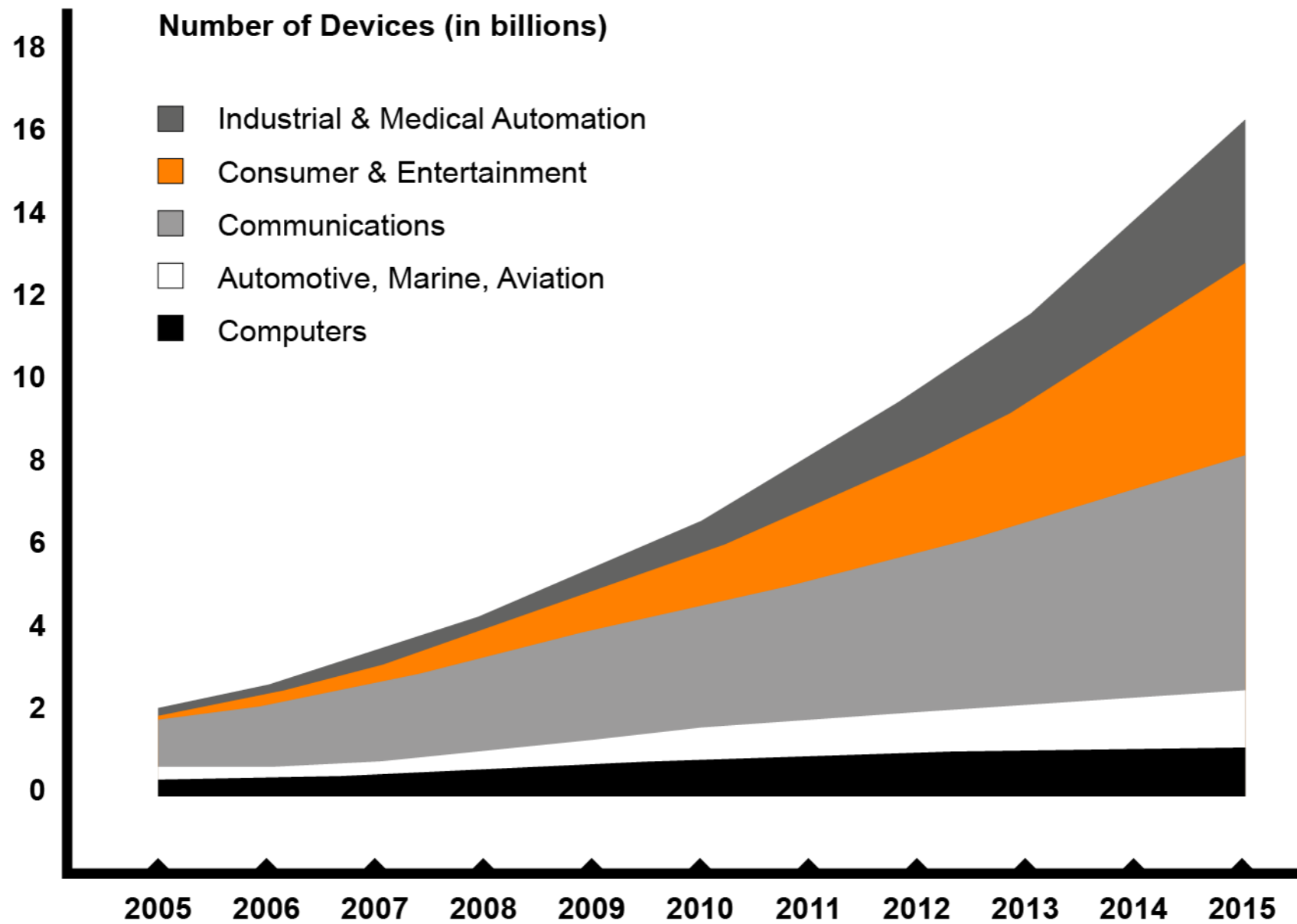
**NON-TECHNICAL PRESENTATION**

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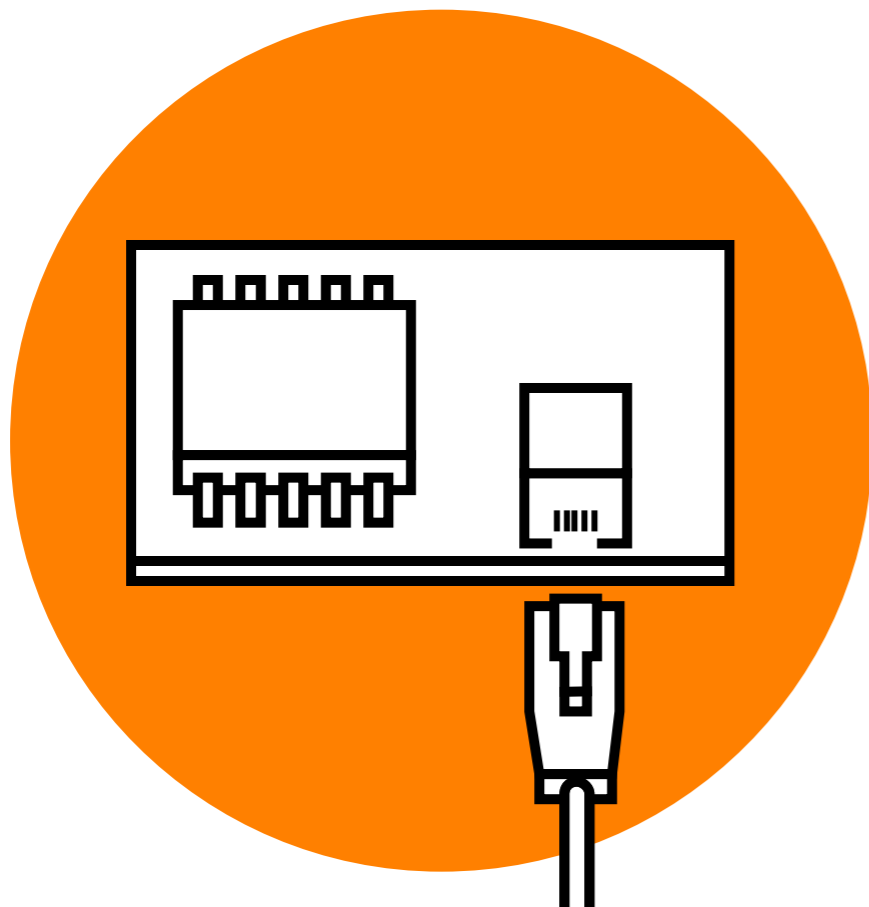
- ✓ Increase the price of your electronic product, by enabling online communication to it.
- ✓ Reduce support costs, because your staff can fix problems online.
- ✓ Create a communication to devices behind a firewall, fast and at zero cost.
- ✓ Save money on support calls, from customers trying to create communication through firewalls.

# 15 BILLION DEVICES - CONNECTED TO THE INTERNET



Source: John Gantz, The Embedded Internet: Methodology and Findings, IDC, January 2009

- ✓ The Nabto software is typically preinstalled on the device in the production process.
- ✓ The software becomes typically an integrated part of the vendors own software package.
- ✓ The software footprint ranges from 1 Kilobyte up to 2 Megabytes.

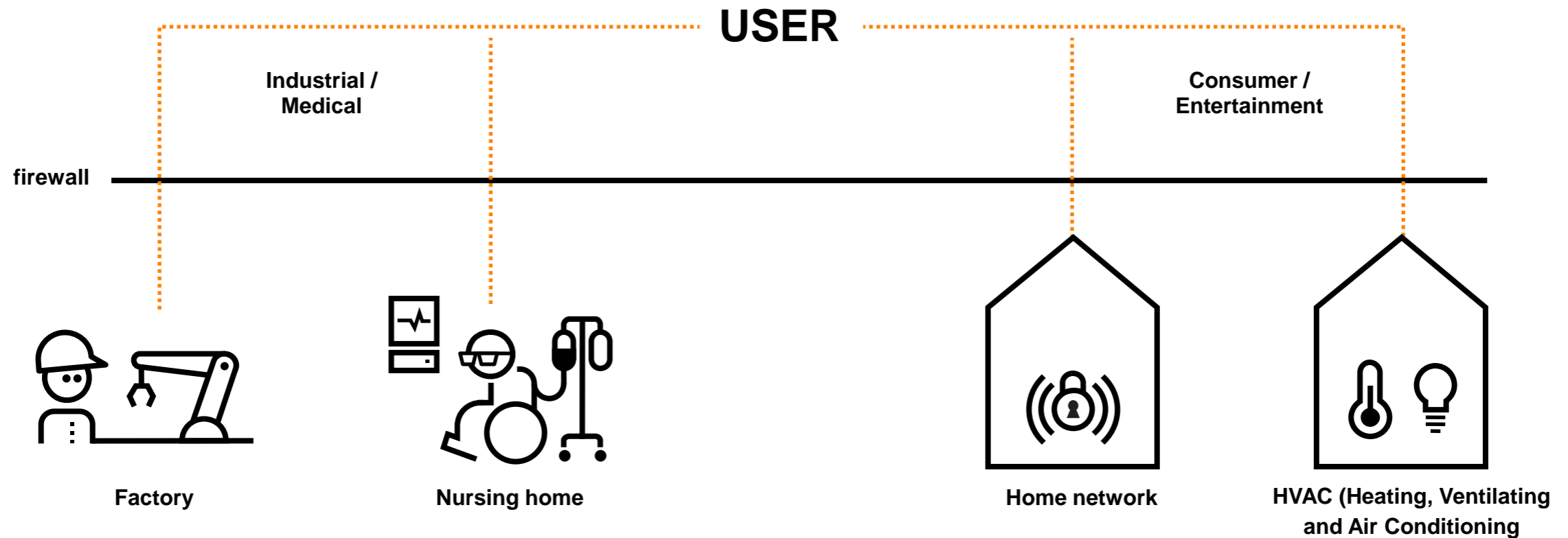


## DEFINITION OF DEVICE:

- CPU on board
- Access to communication via LAN, WIFI, GSM, GPRS, etc.

## EXAMPLES OF DEVICES:

- Harddisk recorder, NAS, television, set top boxes, etc.
- Home automation, surveillance, alarm, etc.
- Telemedicine, units that measure the state of health, (like) e.g. Blood pressure etc.
- PABX, IP phones, DECT, etc.
- Controllers in agricultural production.
- Solar panels

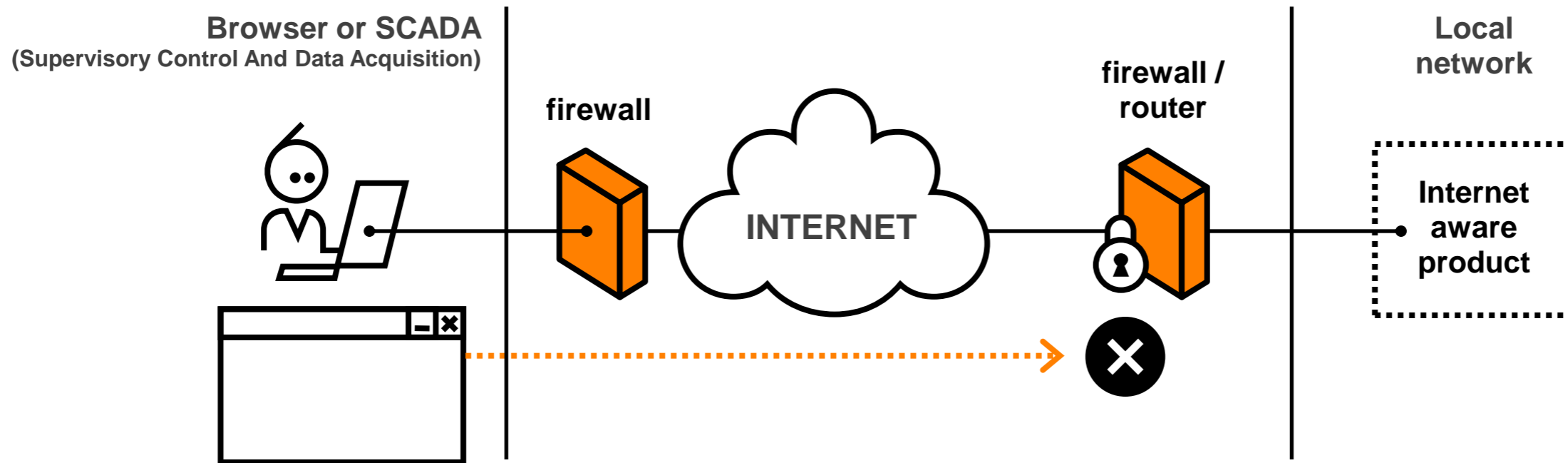


## THE USER AND VENDOR WANT TO ACCESS THE DEVICE BEHIND THE FIREWALL:

- In the installation process
- In the support process, update of firmware, etc.
- To do remote control – heat, light, alarm, harddisk recorder, etc.
- Retrieve data – consumption of power, temperature, stream video, missed calls on a phone, etc.
- Collect user behavior.

**THE REMOTE ACCESS  
POSSIBILITIES GIVE  
GREATER PRODUCT VALUE  
AND REDUCE INSTALLATION  
AND SUPPORT COSTS!**

# THE SOLUTION - NABTO



http is NOT designed for the internet of today

**NABTO IS...!!!**

✓ IDENTIFICATION

✓ CONNECTION

✓ WEB-SERVER IN 1 KB

✓ SECURITY

# CHALLENGE NO. 1 - FIREWALL

## CHALLENGE:

To establish a communication to a device behind a firewall, it is necessary to configure the firewall, creating a rule that allow the user to access the device from the internet. There is a lot of hassle to fix this issue, a majority of private individuals can't fix it without assistance.

When it is a company firewall, we need to get permission from the IT department to change settings on the firewall.

There is a need to prepare the customer, that there is a firewall issue, and there will be costs involved in fixing it.

## SOLUTION:

When the device is connected to the LAN/WIFI/GSM/GPRS, the device automatically initiates a communication to tell where it is, and how to communicate.

Certificates are exchanged, a plug-in is installed in the browser, and a encrypted tunnel is created.

## BENEFIT:

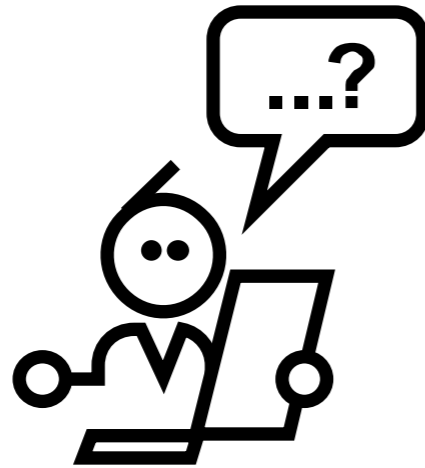
- **No firewall configuration, nor additional cost for the user.**
- **Simple installation (for the customer), and enhanced user experience.**
- **Remote support and installation can be performed from the strat.**
- **Reduced cost of support for the vendor**
- **Strong selling point for the vendor**



## CHALLENGE NO. 2 - CONNECTION

### CHALLENGE:

To establish a communication to a devices behind a firewall, it is necessary to: Obtain a fixed/static IP-address, there is attached a significant cost to that, this is typically consumers and small-medium business.



The user has to remember a complex URL like <http://93.162.184.142:5060>

If the device constantly is moved around, to different locations, a new URL is created every time. This is the case in telemedicine, where equipment to measure blood pressure etc. is moved on to the next patient, when the treatment is ended successful... or not!

### SOLUTION:

The base station is always aware where the device is, no matter where it is connected just now. Therefore the URL is very simple, for example [serialnumber.vendor.com](http://serialnumber.vendor.com), i.e.

[nabto://00234.sony.com](http://nabto://00234.sony.com)

### BENEFIT:

- ✓ Larger value of the product, when it can be remote accessed
- ✓ No costs to fixed/static IP address.
- ✓ Nice user experience.
- ✓ Reduced cost of support for the vendor.
- ✓ Strong selling point for the vendor.

### CHALLENGE:

The user and vendor, get a higher value of the product, when the device can be accessed from a browser, because the user experience is better in a WEB-browser than a small LCD, and it can be done remotely. When a device has to run a local WEB-server, the demand for processor power and memory increases, and thereby give higher hardware costs. It is not possible to store many language versions, again without increasing the hardware cost.

### SOLUTION:

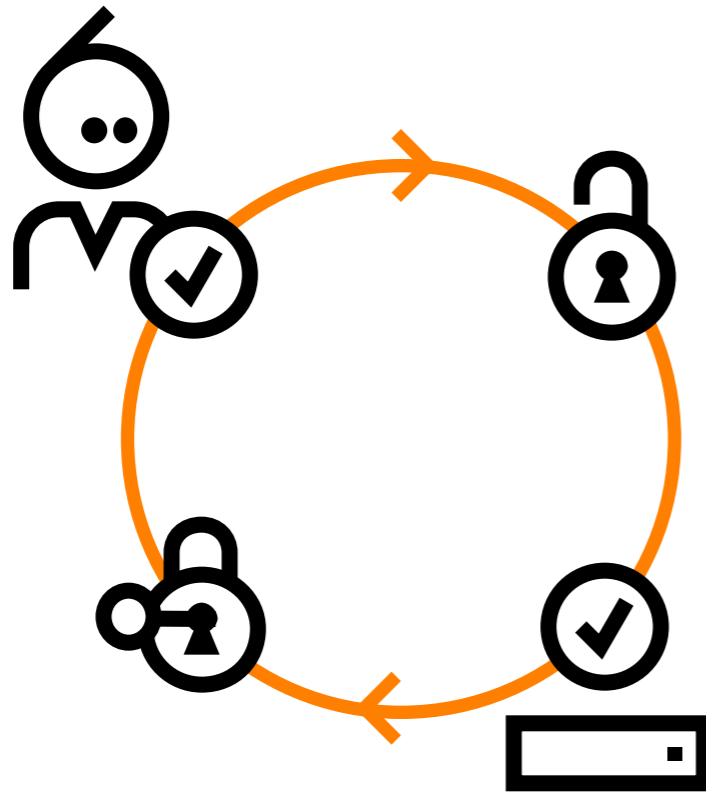
Instead of placing graphics, templates, scripts, etc. on the device, it is placed on the base station, and only the absolute necessary data is retrieved from the device.

For example a temperature measurement, which only is a few bytes. The communication to the device is done with a very compact protocol, which results in a minimal amount of data transmission, and thereby low cost, in case when there is attached a cost to data consumption (GSM/GPRS).

### BENEFIT:

- ✓ **Reduction of hardware cost.**
- ✓ **Possible to support unlimited number of language versions.**
- ✓ **A OEM vendor, can support many brands on one identical firmware.**
- ✓ **The WEB user interface can centrally be updated on the base station.**
- ✓ **The user gets a user interface in the browser, which is in the users comfort zone, even without internet access, with a direct cable connection.**

## CHALLENGE NO. 4 - SECURITY



### CHALLENGE:

As devices are controlling more and more critical tasks, it is of course vital, that unauthorized control is impossible.

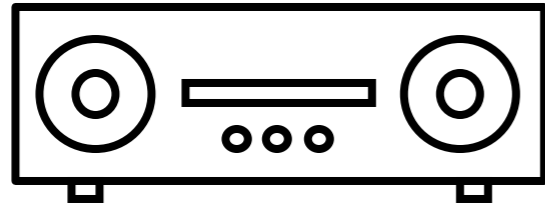
It is also important, that retrieved data is stored at the right location.

### SOLUTION:

The procedure of creating the secure tunnel, embrace techniques known from WEB banking, with usage of certificates, digital signature, etc. The procedure is even improved, so no direct connection is established before both parties have been confirmed.

### BENEFIT:

- ✓ **High security**
- ✓ **No additional security methods are required.**
- ✓ **Strong selling point for the vendor.**



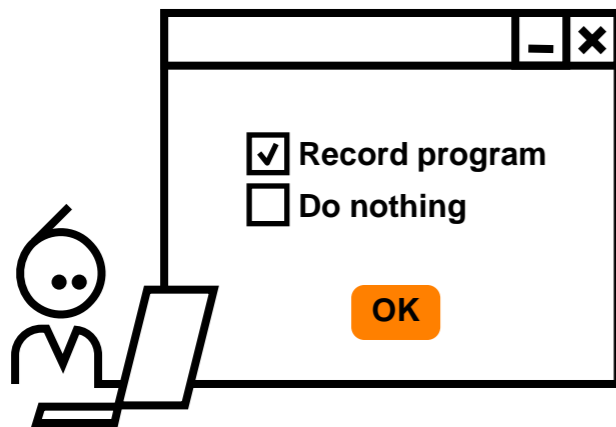
Choose a device with Nabto functionality - could be a hard disk recorder, PBX, surveillance, NAS, etc.



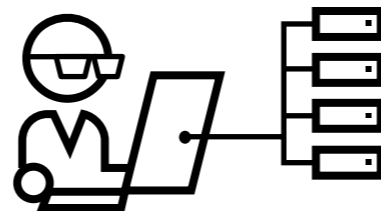
Connect it to either LAN, WIFI or GSM



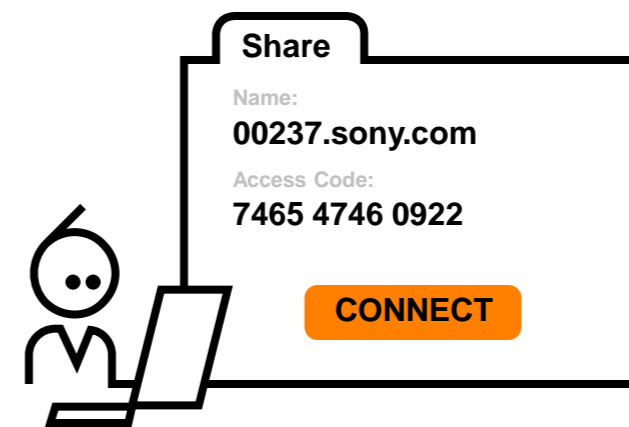
Type 000237.sony.com in your browser or application



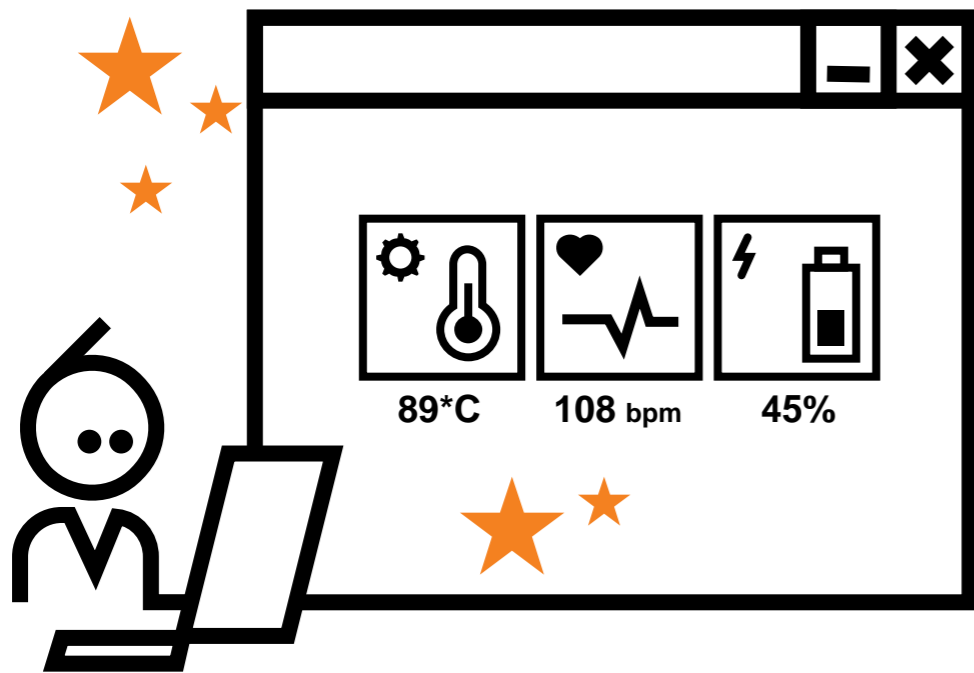
Now, you can control it, from where ever you are!



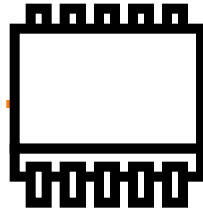
Easy and low cost to support for the vendor.



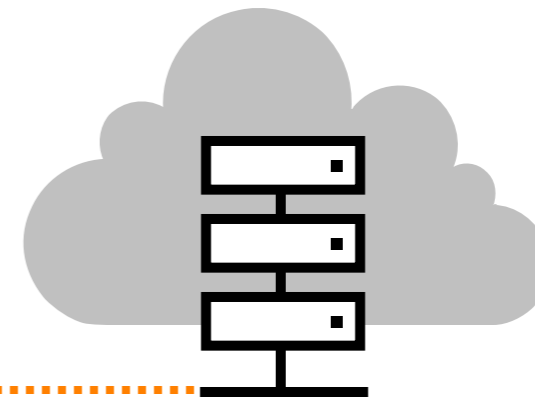
Easy and secure to share data across networks.



We can provide the user with a fantastic WEB GUI, instead of a small boring LCD display. Works also without internet access, and both on internal and external LAN, and the user does not experience where data is retrieved from.

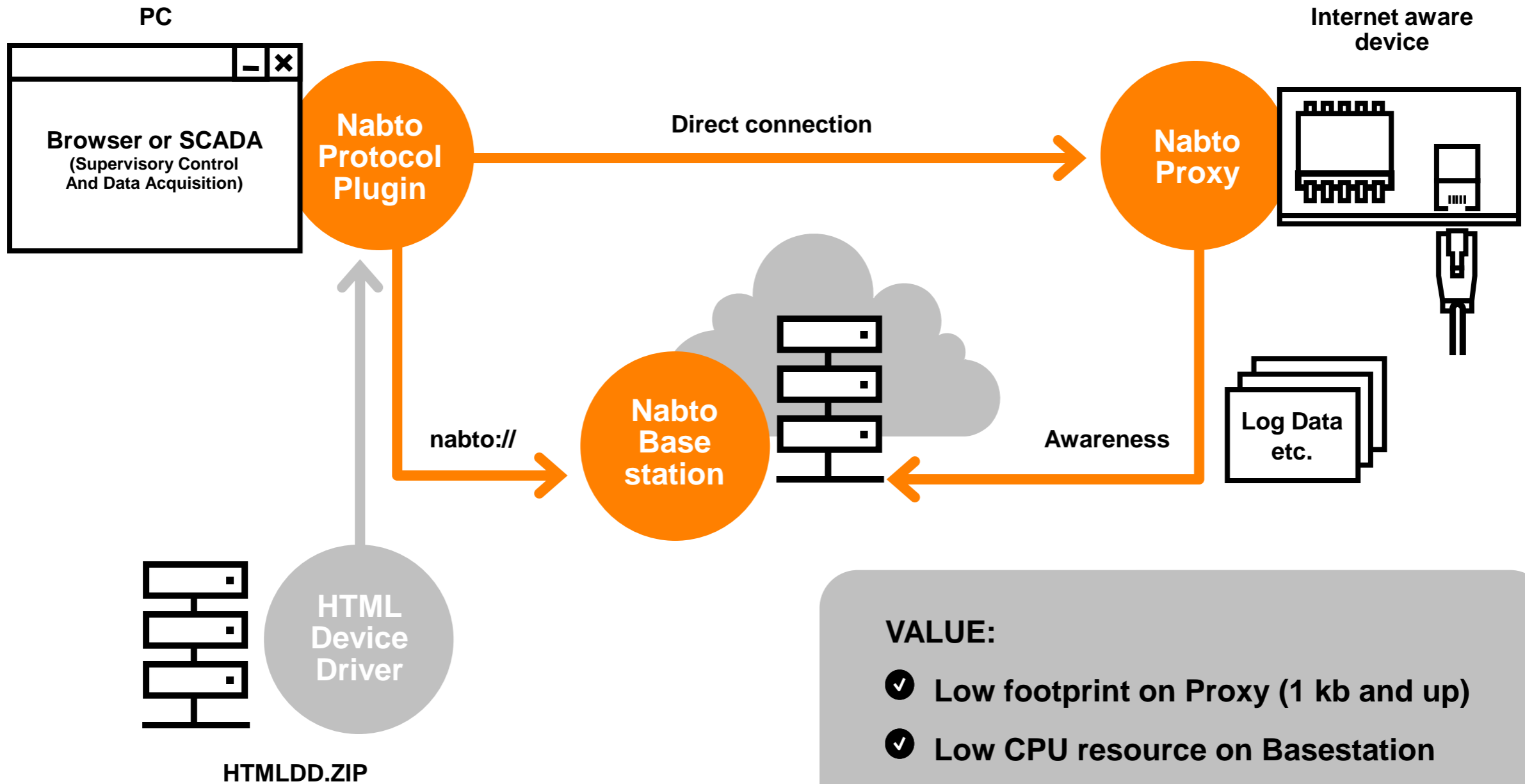


Low resource CPU, only able to carry very small WEB server. This is installed on IP-phones, heat controllers, surveillance cameras, etc.



Base station delivers an object repository with heavy objects like java scripts, GIF, styles, etc. Central update of user interface, and can differentiate on OEM and original version by the address of the device. Can support multi language.

# LIGHT WEIGHT VERSION

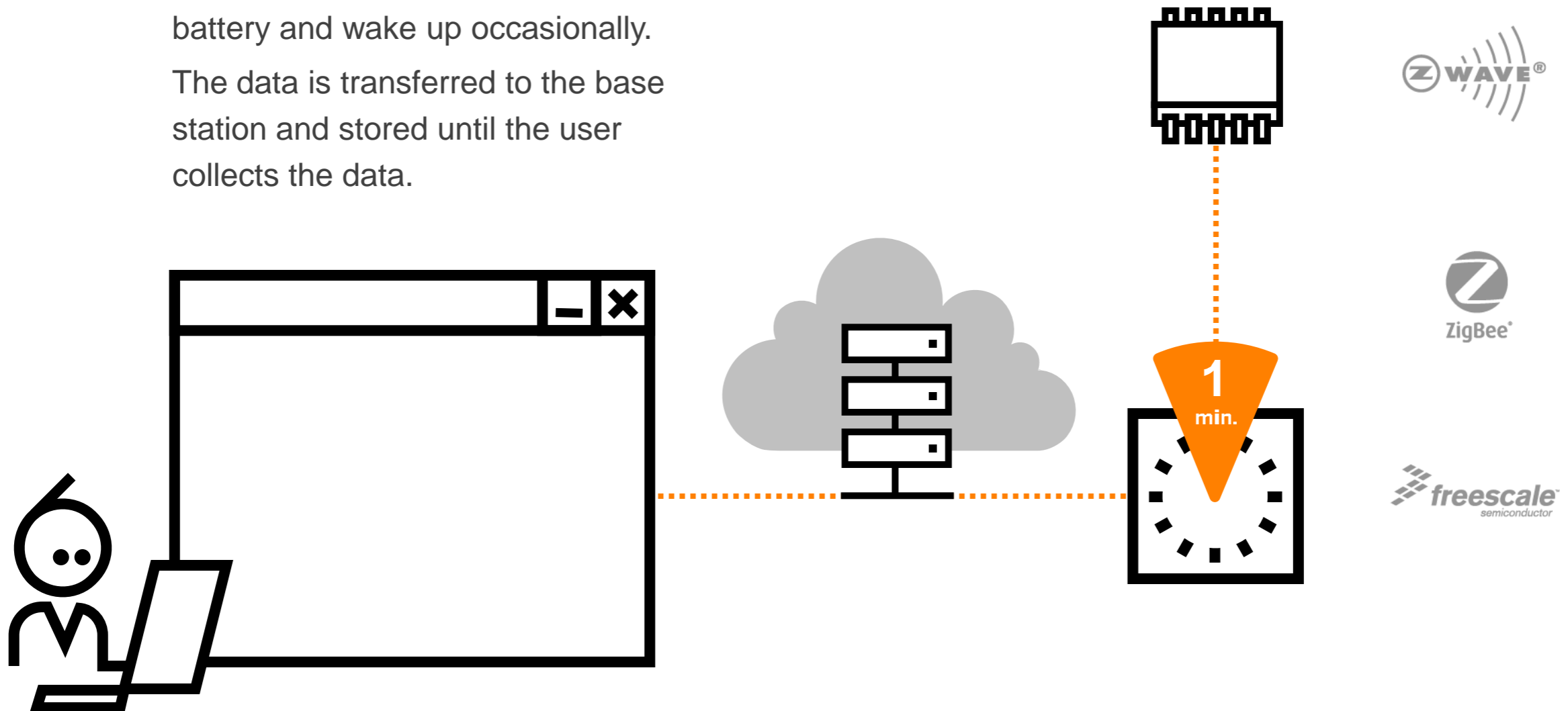


## VALUE:

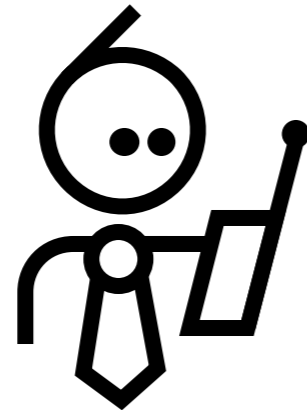
- ✓ Low footprint on Proxy (1 kb and up)
- ✓ Low CPU resource on Basestation
- ✓ Direct connect to Proxy
- ✓ Central "layout" decision
- ✓ XML-SOAP possible interface for M2M

## CACHED VERSION

Some devices live on a 5 year battery and wake up occasionally. The data is transferred to the base station and stored until the user collects the data.



When the user requests data, the base station answers that the device is off line, but delivers the latest reading, which could be a temperature measurement. Commands like on/off can be queued and sent to the device when it wakes up.

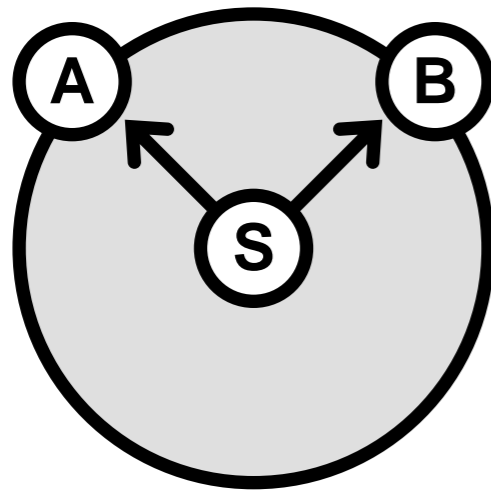


- ✓ The Nabto software can also provide a secure encrypted direct easy access to a SMS gateway or mail-server.
- ✓ Connections require no central relay-server.
- ✓ Connections are point-to-point so thousands of video streams require very few central resources.



## Web 1.0

1-to-many communication

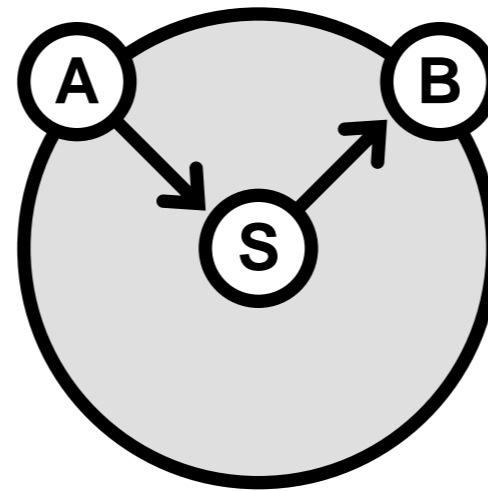


### Examples:

- cnn.com
- jp.dk
- dr.dk
- google.com

## Web 2.0

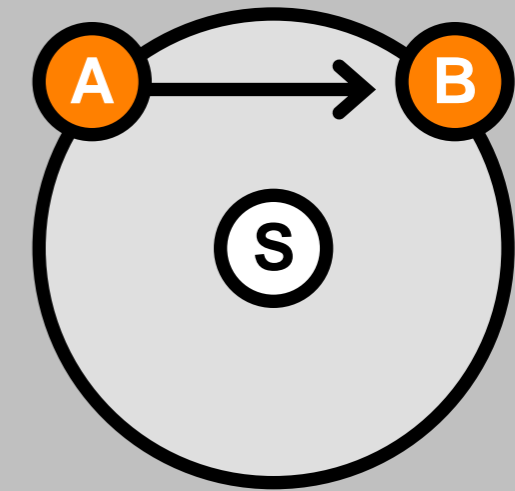
1-to-server-to-1



### Examples:

- facebook.com
- twitter.com

## Nabto



**Direct communication**

**Next generation internet**

# nabto

connect - simple and safe



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