nabto

Nabto – Connect simple and secure
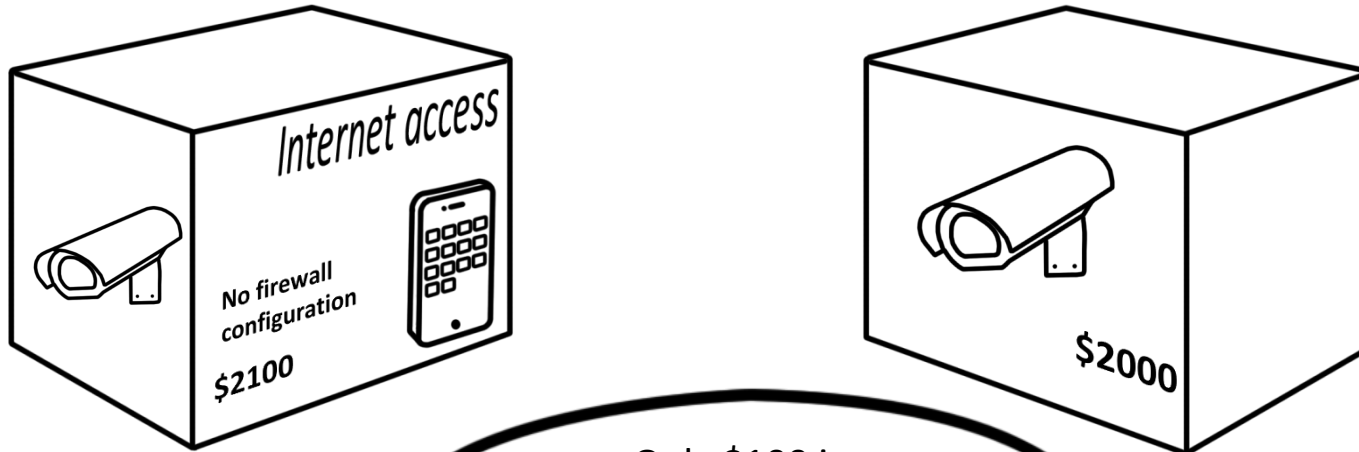
Nabto in Video Solutions
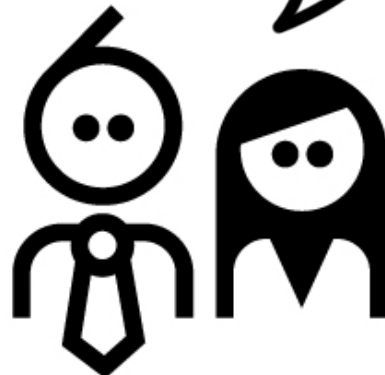
BENEFITS OF **P2P** SOLUTIONS IN GENERAL

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Peer-to-Peer

Relay service

Relay Client

Relay Enabled Device

all communication through central service
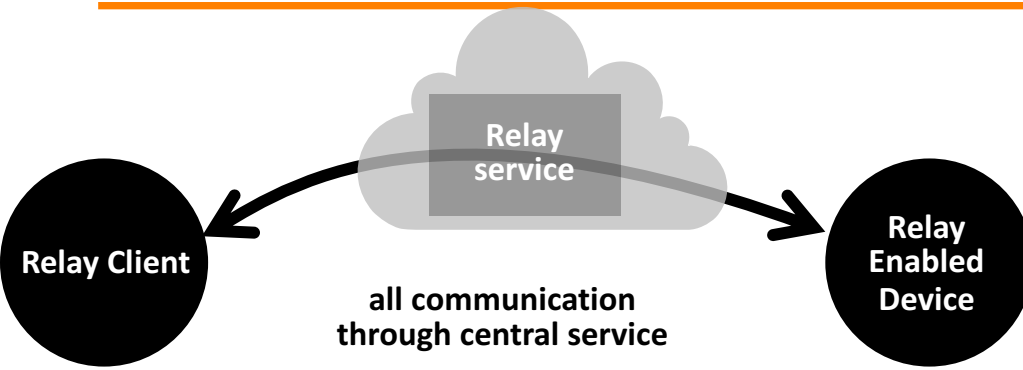
Relay

Poor user experience:

÷ **Increased network overhead**

÷ **Extra latency prevents real-time interaction**

÷ **Always requires Internet connection**

High cost of operation:

÷ **High traffic cost, all data goes through server**

÷ **Limited amount of connections per server**

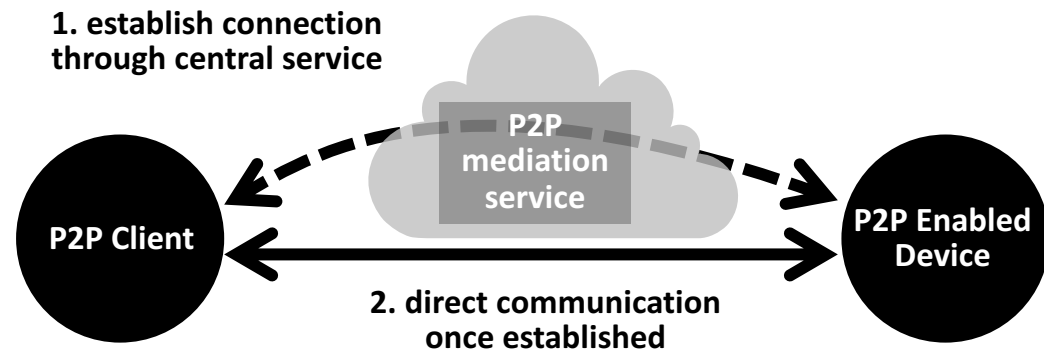### Better user experience:

✓ **Lower latency**

✓ **Higher throughput**

✓ **Instant interaction**

✓ **May allow offline operation**

Lower cost of operation:
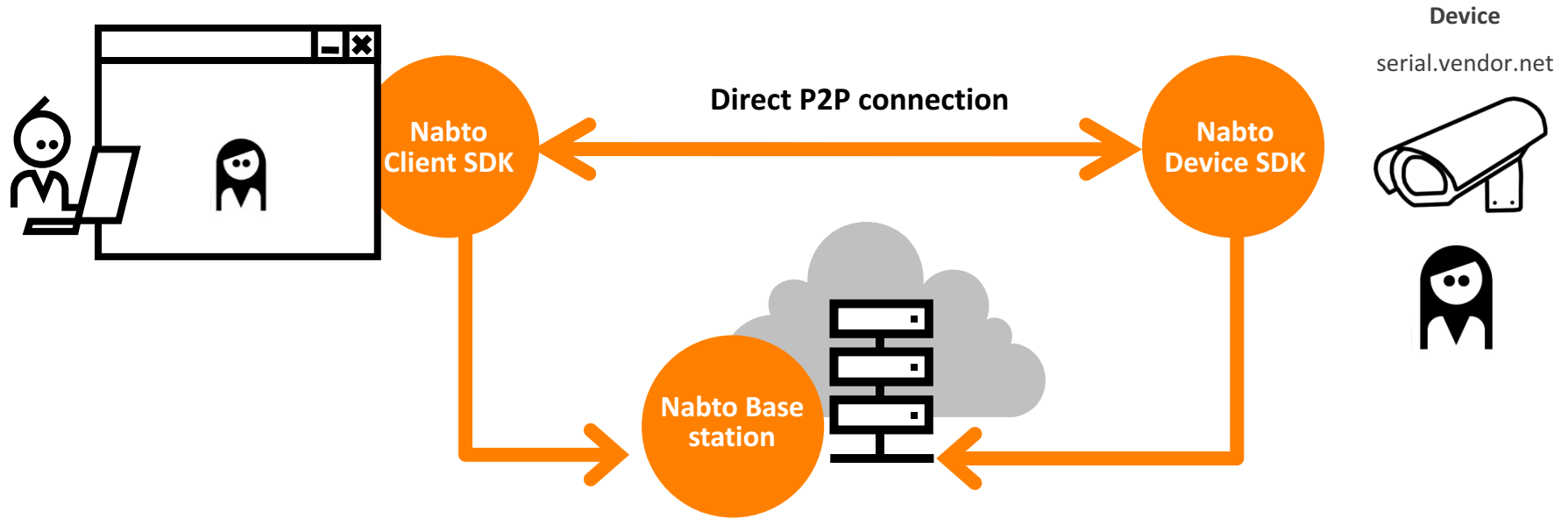
✓ **Huge bandwidth savings**

✓ **Less compute resources needed**

VS

1. establish connection through central service

P2P mediation service

P2P Client

P2P Enabled Device

2. direct communication once established

Nabto's Peer-to-Peer Solution

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Device
serial.vendor.net

Nabto Client SDK

Direct P2P connection

Nabto Device SDK
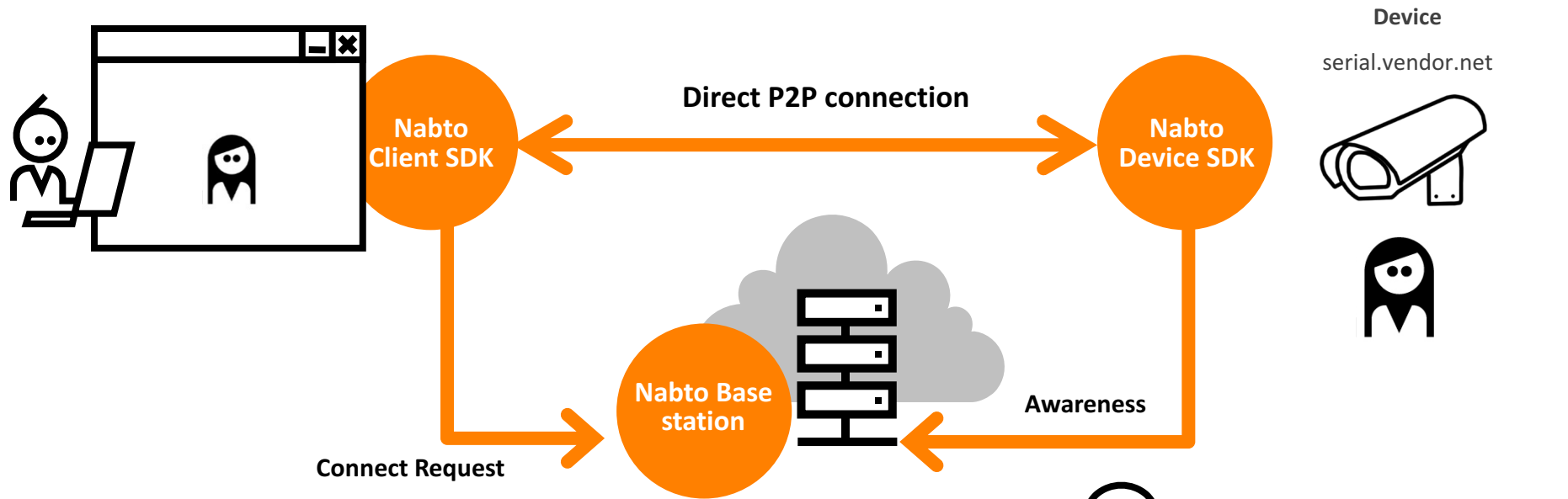
Nabto Base station

- ✔ **Nabto provides a simple, award-winning P2P solution**
- ✔ **A solid, secure and high-performing platform – Scandinavian quality software**
- ✔ **Platform in production since 2009**
- ✔ **1,000.000+ devices deployed on 4 continents as of Q1 2016**
- ✔ **Extremely simple to integrate and operate**
- ✔ **Unsurpassed P2P ratio – symmetric NAT traversal yields 96% success in real life deployment**

...?

Fluent Technical and Business support in English, Mandarin, German, French and the Scandinavian languages

THE NABTO BASESTATION (P2P SERVICES)

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Nabto Client SDK

Direct P2P connection

Nabto Device SDK

Nabto Base station

Connect Request

Awareness

- The Nabto Basestation is a phone-central like entity that knows of all devices
- It mediates P2P connections between clients and devices
- It performs relay if P2P connections cannot be established
- Either full turn-key solution where Nabto takes care of all hosting
- - or it can be fully owned and hosted by customer for maximum privacy with Nabto completely out of the loop
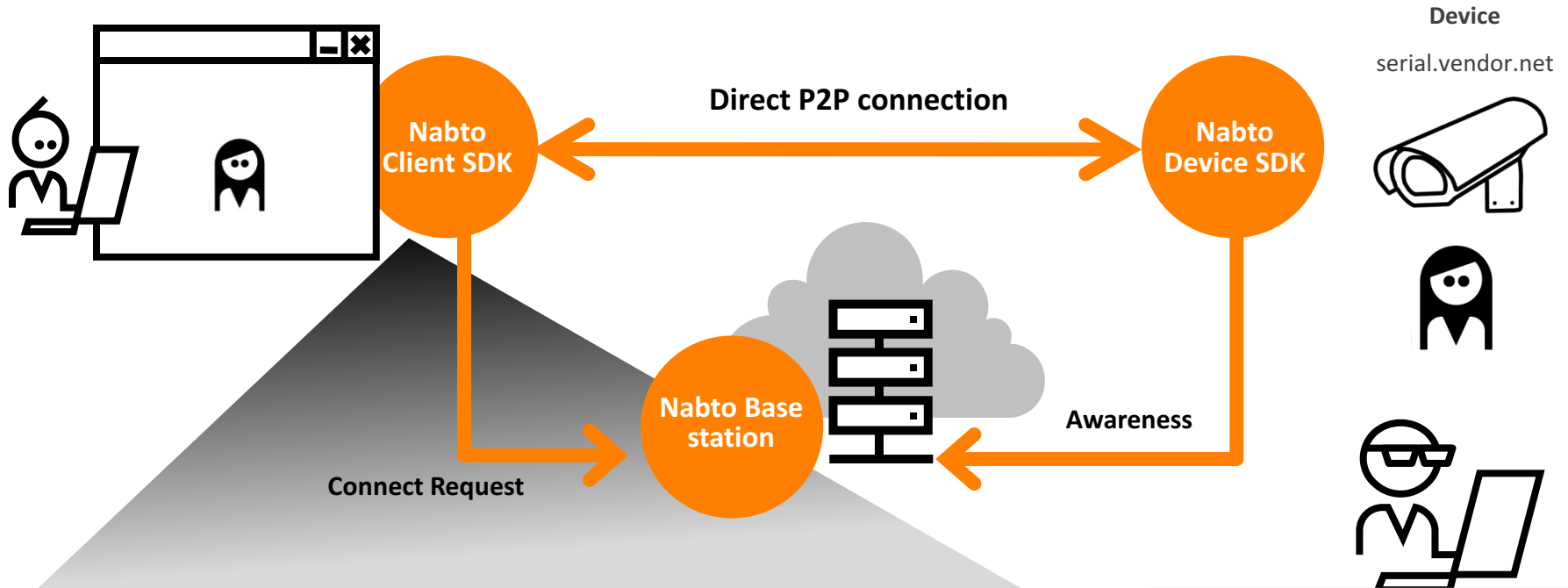
RESTful API to basestation for querying and manipulating basestation state – and for performing remote diagnostics on devices and clients.

Basestation reports platform statistics into an ELK stack to provide system overviews in dashboards and analyzing trends and incidents.

EXCEL

GLOBAL CLOUD DEPLOYMENT

- The Nabto Cloud distributes clusters of basestations all around the world
  - The device automatically registers with a basestation in the closest datacenter
  - The client automatically locates devices across datacenters
- Ensures best possible performance and high availability
- Everything happens automatically, vendor does not have to worry about where devices or users will be located

VIDEO PLAYER APPLICATIONS – SDK OR APPS

nabto

Device

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Direct P2P connection

Nabto Client SDK

Nabto Device SDK

Nabto Base station

Awareness

Connect Request

- ✓ **Video player applications are built using the Nabto Client SDK**
- ✓ **Shrink-wrapped ready-to-use apps for turn-key solutions are available**
- ✓ **Or custom apps can show video feeds through extremely simple integration:**
  1. **Open Nabto tunnel to Nabto device**
  2. **Connect RTSP client to local RTSP proxy opened by Nabto SDK**
  3. **Nabto securely transmits data from RTSP server on device to client player**
- ✓ **Supports Windows, OS X, Linux, iOS and Android**

Integration into custom apps is extremely simple:

```
nabtoStartup();
s = nabtoOpenSession(userid, passwd);
tun = nabtoOpenTunnel(s, host, port);
rtspPlayer.play("localhost", port);
// voila!
```

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Scan QR

For the initial connection to device, the user has several options:

- ✔ **Scan a QR label on the camera using smartphone camera**
- ✔ **Discover the device on the local network with a BonJour^{TM} style mechanism**
- ✔ **Manually enter the device address printed on the camera**
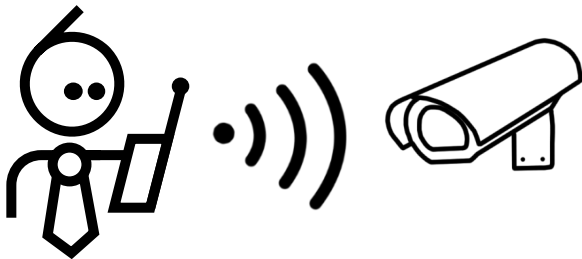
... or discover on local network

60-fc-42.vendor.net
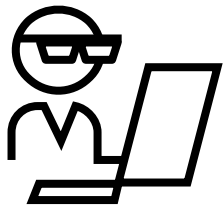
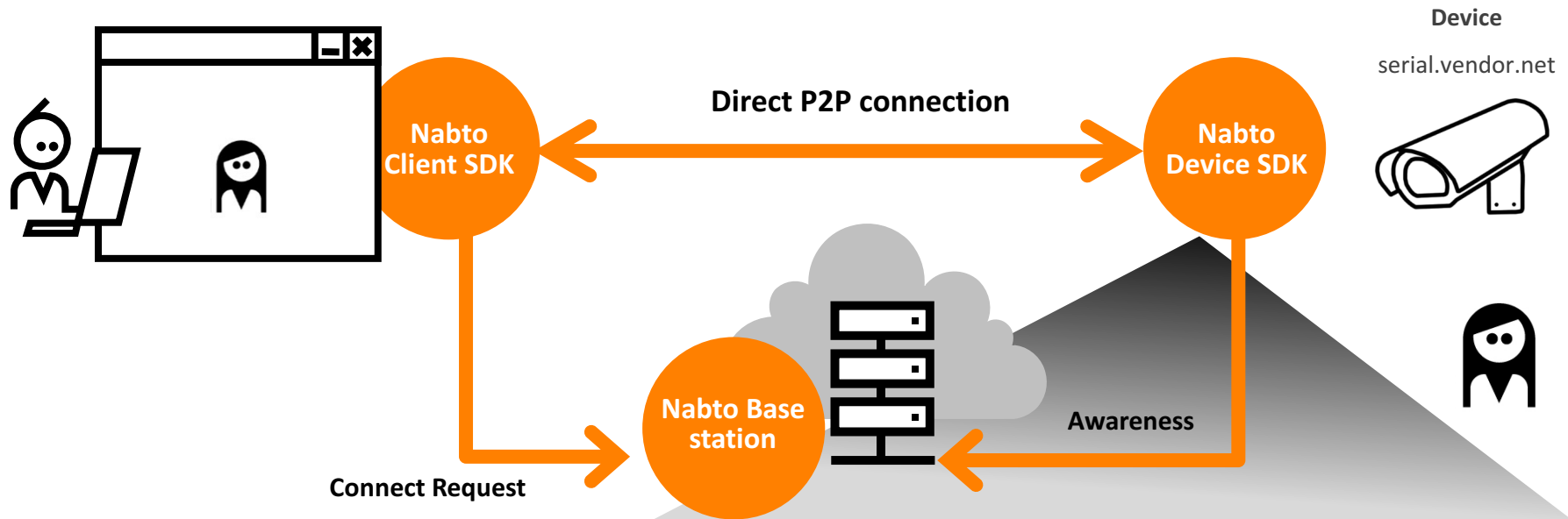.. or manually enter address

You just need to obtain the device id in some way and pass it to the tunnel open function in the API.

The API has a simple function to get a list of device ids on the same local network.

THE NABTO DEVICE SDK

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Direct P2P connection

Nabto Client SDK

Nabto Device SDK

Nabto Base station

Connect Request

Awareness

✓ **Integration on the camera or DVR/NVR is done through The Nabto Device SDK**

✓ **Extremely simple integration:**

1. **Compile the open source Nabto Tunnel, part of the Nabto Device SDK**
2. **Install and start the Nabto Tunnel (it acts as an RTSP reverse proxy)**
3. **Start the RTSP client as described earlier**
4. **Nabto automatically creates a secure tunnel to the RTSP server on the camera**
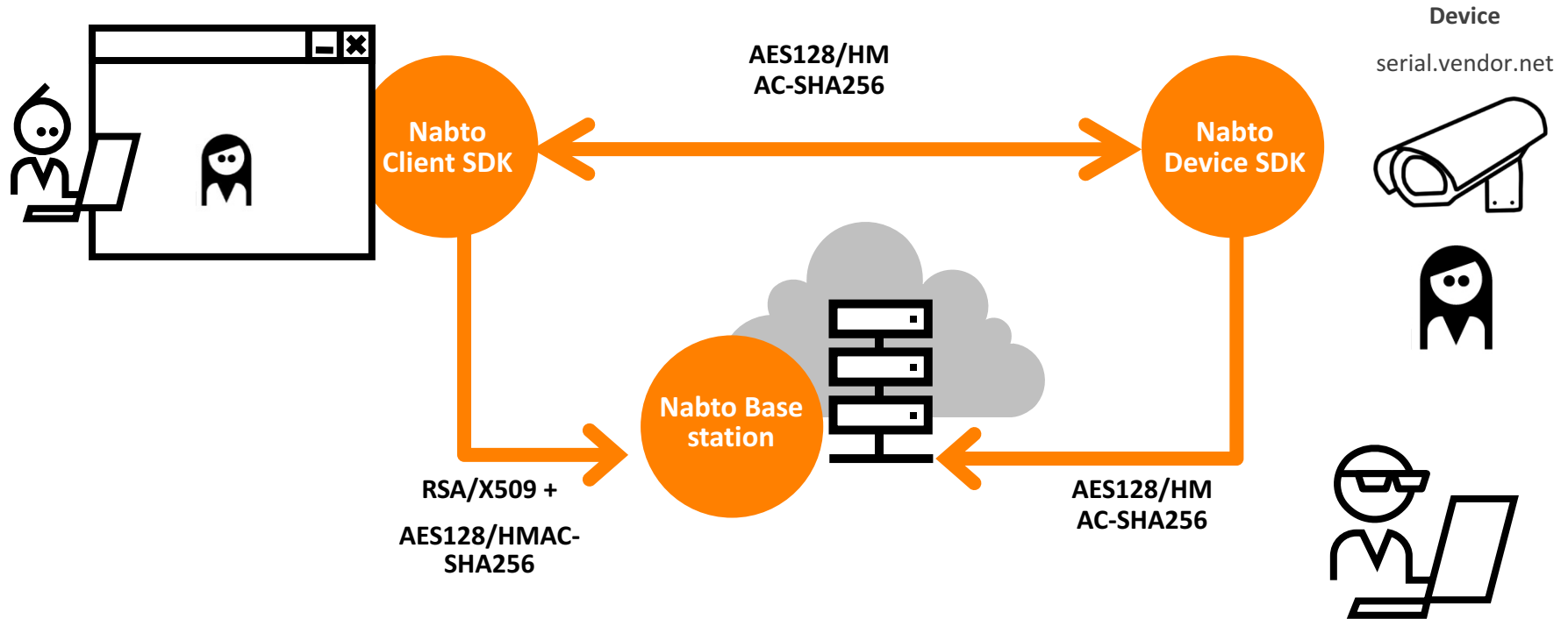
Supports several target platforms out of the box – including all Linux flavors on any architecture with a GCC toolchain.

Nabto is happy to assist to build optimized binaries for your specific platform if you can provide a GCC toolchain.

SECURITY IN THE NABTO PLATFORM

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AES128/HM AC-SHA256

Nabto Client SDK

Nabto Device SDK

Nabto Base station

RSA/X509 +

AES128/HMAC-SHA256

AES128/HM AC-SHA256

- ✔ **The platform has been designed from the ground up with security as a focal point**
- ✔ **Uses same technology as home banking solutions**
- ✔ **RSA/X509 authentication of clients and shared secret based auth of devices**
- ✔ **End-to-end encryption using AES128 and HMAC-SHA256**
- ✔ **Session key exchanged through basestation**

Use Nabto's authorization framework where you maintain Access Control Lists on the device through the Nabto API to control which users can access the device.

Or simply use Nabto as a secure tunnel and use a custom, application level authorization scheme – such as RTSP basic auth towards your own access rules on the device.

BUSINESS MODEL

FREE

Nabto Client SDK

$

Nabto Device SDK

Device
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Nabto Base station

$$$
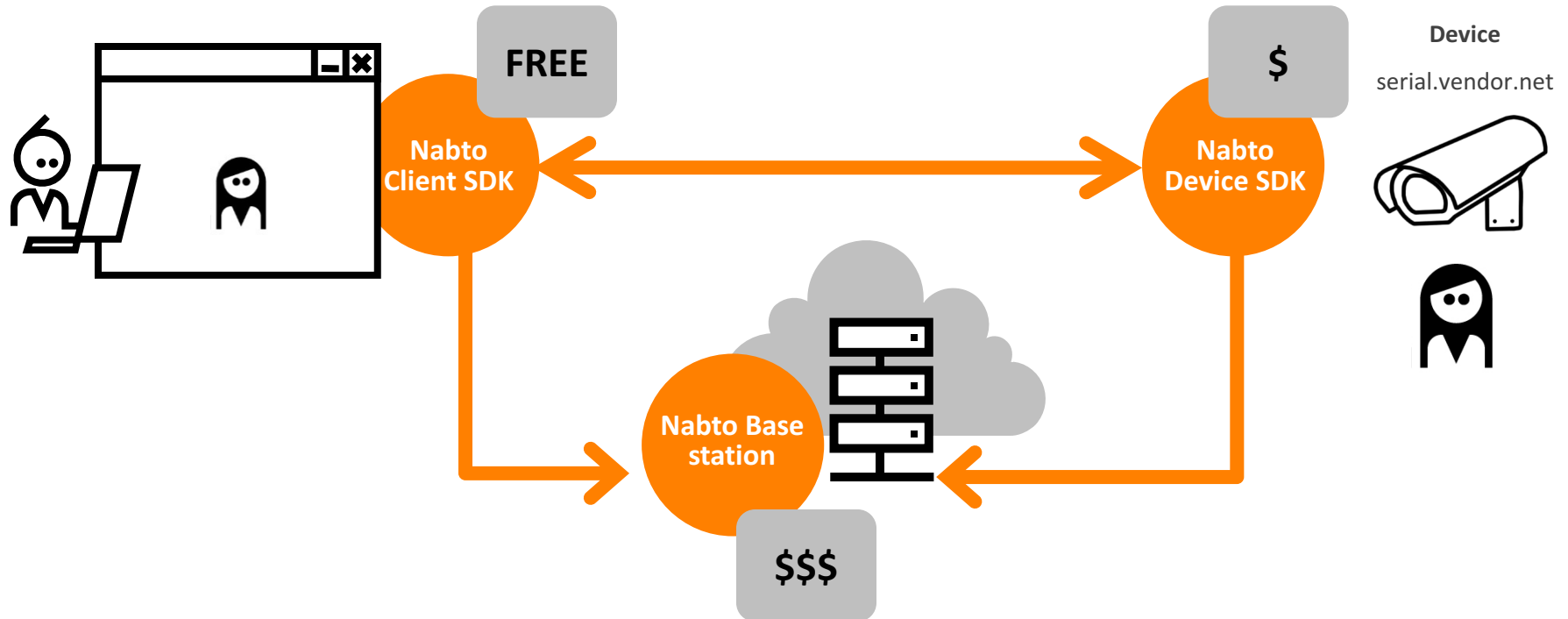
- ✔ One-time fee is charged for the Base Station, depending on number of devices to handle.
- ✔ Small one-time fee is charged per device depending on volume.
- ✔ Above fees include unlimited use of all client libraries and apps
- ✔ Nabto provides optional hosting services – but basestation can be hosted by customer in own datacenter or at a VPS / cloud solution for full privacy and control

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connect - simple and secure