Swiss Open Source Security Software for the World Market

Polish-Swiss ICT-Sector Meeting, September 2nd 2015

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strongswan

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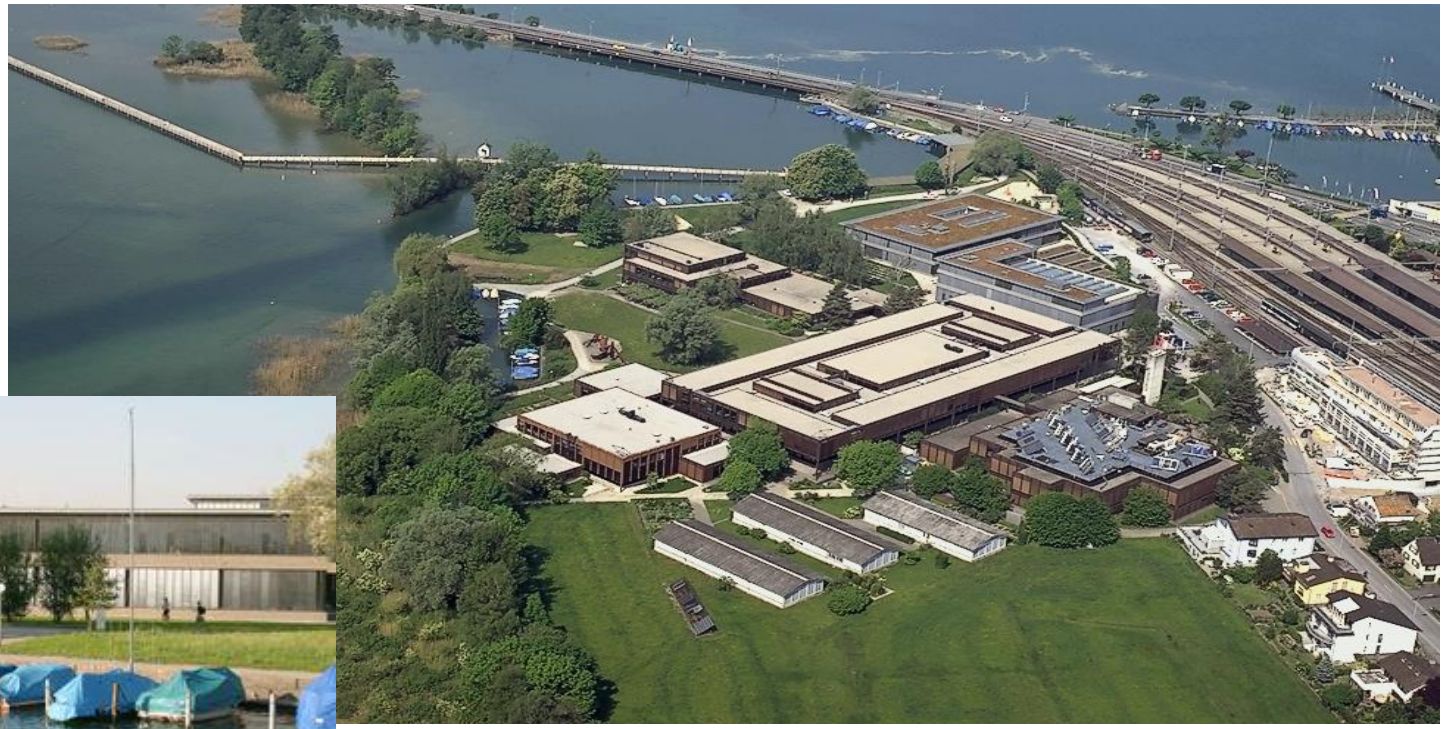
- University of Applied Sciences with about 1500 students
- Faculty of Information Technology (300-400 students)
- Bachelor Course (3 years), Master Course (+1.5 years)



strongSwan – the OpenSource VPN Solution

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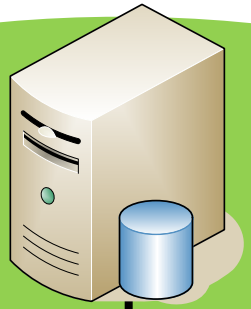
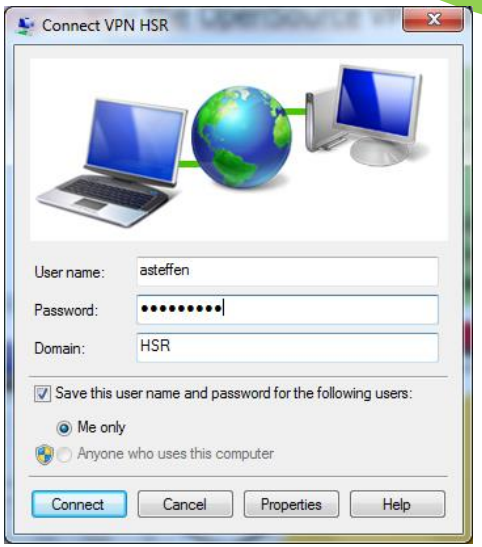
Windows Active Directory Server

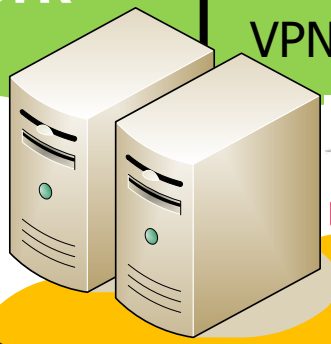


Linux FreeRadius Server

Corporate Network

High-Availability strongSwan VPN Gateway





Windows 7/8/10 Agile VPN Client

strongSwan Linux Client

Free Download from Google Play Store

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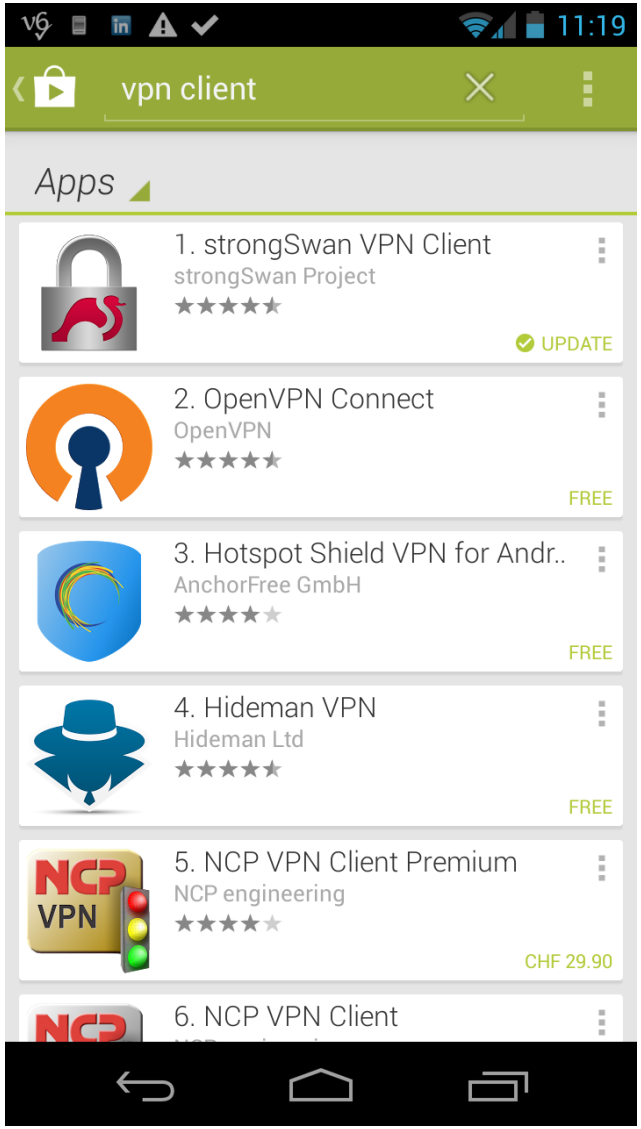

August 27, 2015:
13’254 installations

☑	United States	2,833	21.37%
☑	China	2,283	17.22%
☑	Germany	1,501	11.32%
☐	United Kingdom	608	4.59%
☐	Russia	471	3.55%
☐	Canada	359	2.71%
☐	France	294	2.22%
☐	Australia	290	2.19%
☐	Japan	277	2.09%
☐	Italy	246	1.86%
	Others	4,092	30.87%

strongSwan Downloads by Polish Domains

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Domain	Downloads	Organisation
agh.edu.pl	47	Akademia Górniczo-Hutnicza w Krakowie
cryptotech.com.pl	25	CryptoTech eSecurity Solutions, Kraków
gamrat.pl	29	GAMRAT SA, Jasło
pacomp.pl	32	PACOMP, Warszawa (fuzja z ENIGMA SOI)
pie.edu.pl	11	Przemysłowy Instytut Elektroniki, Warszawa
polmoauto.com.pl	8	POL-MOT Auto, Warszawa
rst.com.pl	4	RST Wrocław / Świdnica
wp-sa.pl	18	Wirtualna Polska

Multiple downloads from download.strongswan.org over the last two years indicate active use of the strongSwan software.

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How to launch a successful Open Source Project

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The strongSwan Project takes off

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- In December 2005 the second generation IPsec Internet Key Exchange protocol (IKEv2) is published as RFC 4306.
- As part of their diploma thesis the two HSR students Jan Hutter and Martin Willi implement a rapid prototype of the IKEv2 protocol in just 8 weeks.
- The IKEv2 software is written in the C language but with a modern, object-oriented, modular and multi-threaded architecture.
- Thanks to an initial project funding by HSR, Martin Willi stays on as a research assistant and implements most of the IKEv2 standard over the next 18 months.
- In December 2006 the first customer orders an IKEv2 feature extension.
- Two years after its inception the strongSwan project becomes financially self-sustaining.

IKEv2 Interoperability Workshops

Spring 2007 in Orlando, Florida
Spring 2008 in San Antonio, Texas

- strongSwan successfully interoperated with IKEv2 products from Alcatel-Lucent, Certicom, CheckPoint, Cisco, Furukawa, IBM, Ixia, Juniper, Microsoft, Nokia, SafeNet, Secure Computing, SonicWall, and the IPv6 TAHI Project.

The strongSwan Business Model

- There are two basic sources of income:
  1. Development of additional VPN standard features or customer-specific plugins, usually on a fixed price basis.
     Main focus during the first 5 years
  2. Licensing of the strongSwan source code under a commercial [closed] source license instead of the public open source GPLv2 license.
     Main focus during the second 5 years
- Professional consulting and training for key customers only
- Some strongSwan users and customers:

  Alcatel-Lucent, Cisco, Clavister, Ericsson, Freescale, Google, Intel, Nokia Solutions Network, Samsung, secunet, Siemens, Sophos, Swisscom, Swiss Post, Uber, U.K. Government, U.S. Government, …

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2014 – The Year of Encryption

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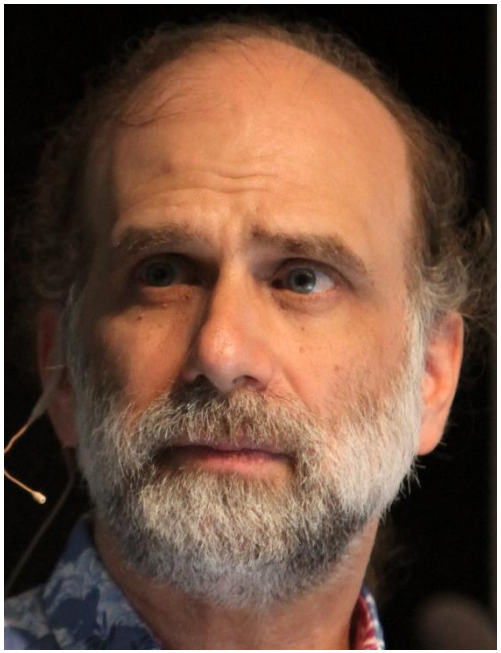
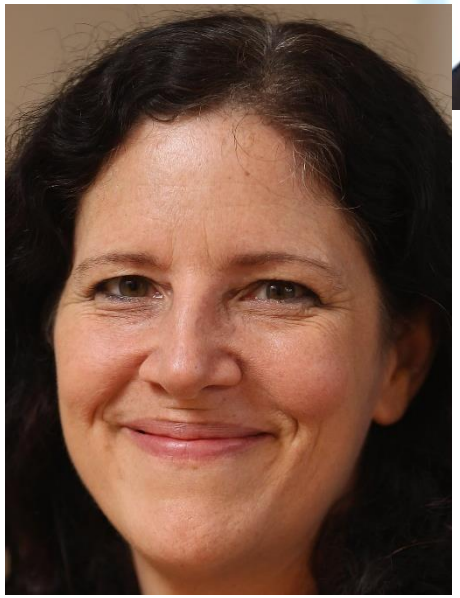
The Snowden Documents – Fall 2013

Edward Snowden



Bruce Schneier

Glenn Greenwald



Laura Poitras

Consequence: 2014 – The Year of Encryption

- Bruce Schneier in his September 2013 Guardian article:

  "Be suspicious of commercial encryption software, especially from large vendors"

- Consequence:

  Many companies (especially in the U.S.) switched to a strongSwan VPN solution in 2014 and 2015.

Keeping Up with Technological Progress

- In 2008 strongSwan adds support of Elliptic Curve Cryptography.
- In 2011 the U.S. Government orders an open source strongSwan-based IPsec Suite B Elliptic Curve Cryptography reference platform for compliance testing of third party VPN products.
- In 2013 documents leaked by Edward Snowden hint at possible weaknesses in standard cryptographic protocols and the possibility that the NSA might have an operational quantum computer soon.
- In 2014 strongSwan hardens its crypto parameters and adds support of lattice-based quantum resistant encryption and signature algorithms.
- In August 2015 the NSA publishes the following statement:

"For those partners and vendors that have not yet made the transition to Suite B elliptic curve algorithms, we recommend not making a significant expenditure to do so at this point but instead to prepare for the upcoming quantum resistant algorithm transition."

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Mutual Attestation of IoT Devices based on the Trusted Network Connect (TNC) IETF Internet Standards

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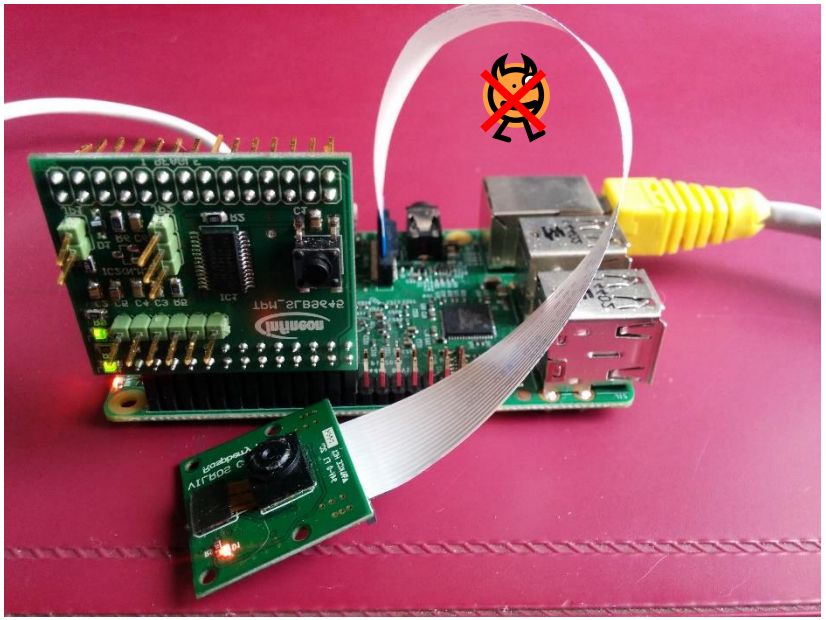
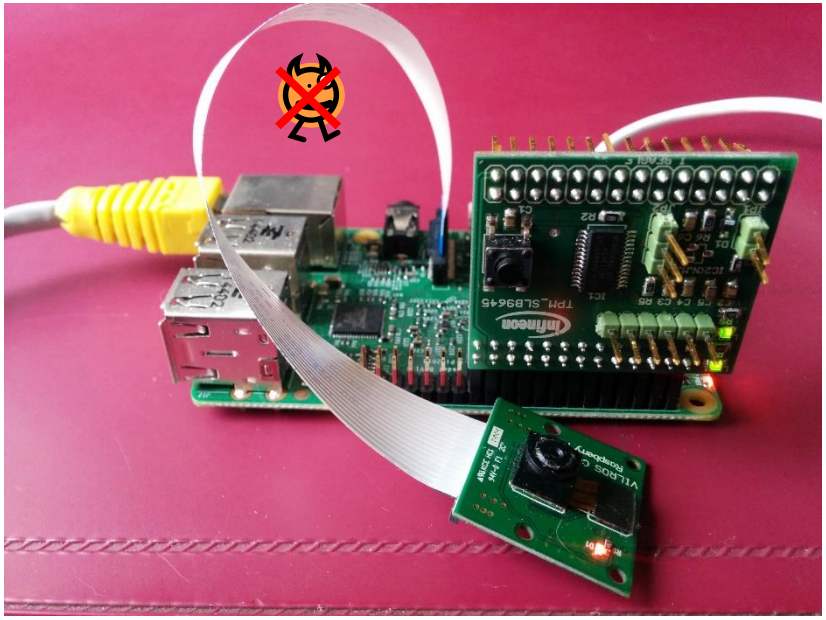
IoT Demo: Mutually Trusted Video Phones

Joint IoT Demo by
Cisco, Infineon & Intel
at RSA 2015 Conference
in San Francisco





Mutual Attestation of IoT Devices
based on TNC Internet Standards

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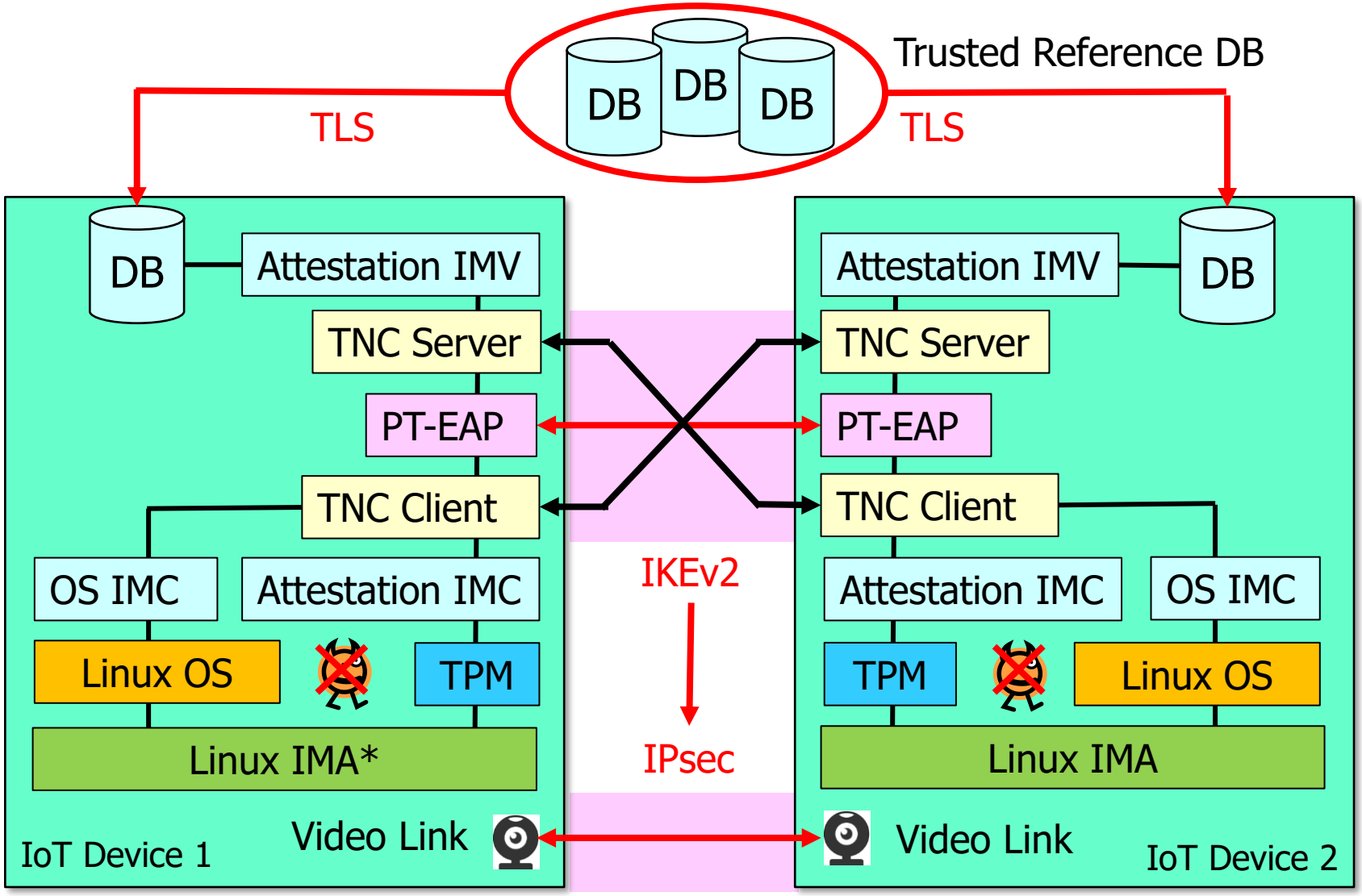

* IMA: Integrity Measurement Architecture

Conclusions

- It is possible to gain a large share of the world market with a specialized open source security product.
- Open source software is very popular in a security environment because the source code can be readily inspected at any time.
- Modular open source software is very popular because it can be easily modified and extended according to customer requirements.
- But, ...
  every open source product needs a constant source of income in order to survive and keep up its quality level (see e.g. the financial problems of the OpenSSL and GnuPG projects).

Thank you for your attention!

Questions?

www.strongswan.org