



**SECURITY IN
CONNECTED CARS**

Mårten Mickos, CEO, HackerOne

HackerOn

**The world's
most popular
bug bounty
platform.**

Over 600

customer



Marten Mickos, CEO

**Formerly SVP and GM of HP's
Cloud Business Unit**

Formerly CEO of MySQLAB

**M.Sc. in Technical Physics from
Helsinki University of Technology**

State of software and security

- **111 billion lines of new software code being produced each year**
- **Demand for cybersecurity workforce is expected to rise to 6 million globally by 2019, with a projected shortfall of 1.5 million**
- **Cybersecurity Ventures predicts**

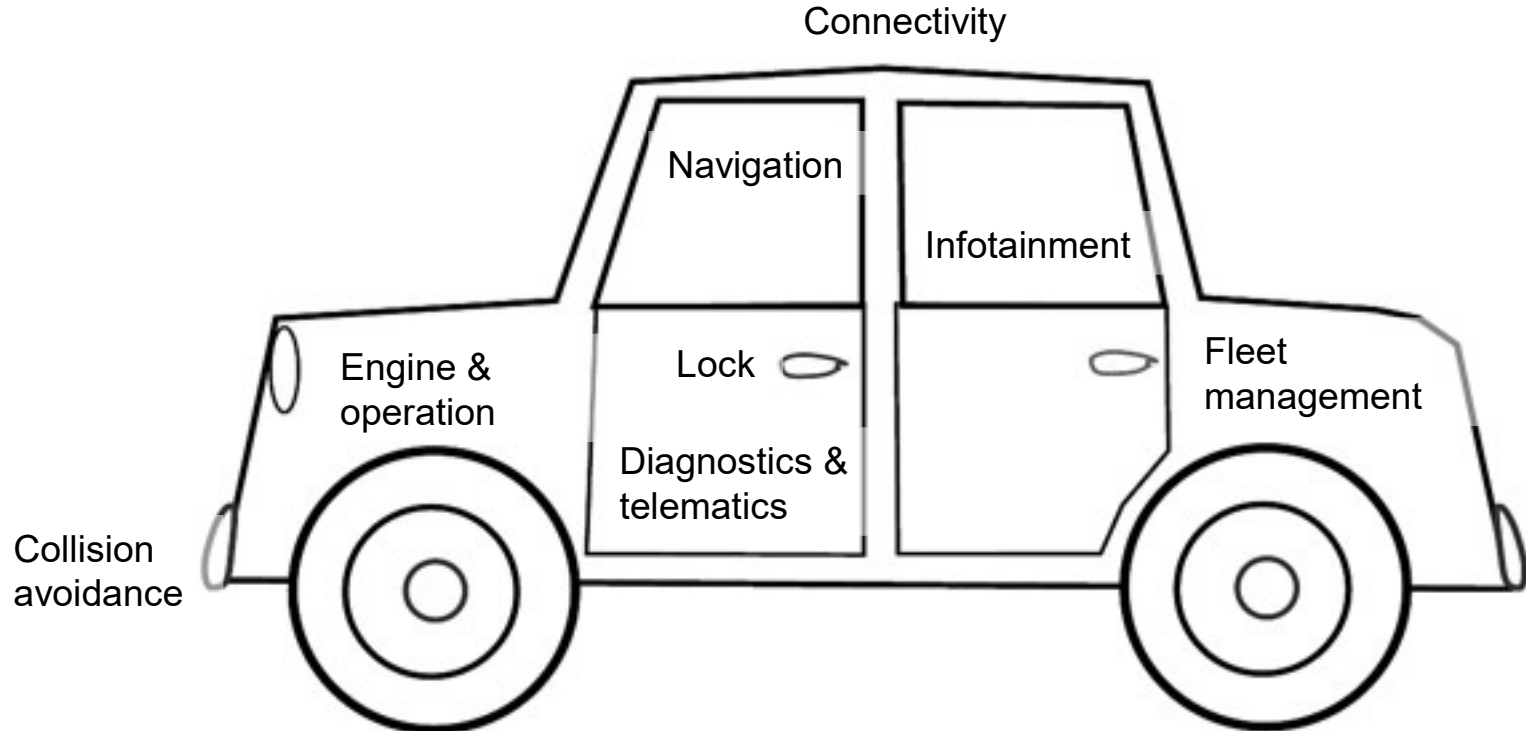
As of Sept. 23, 2016, Tesla has issued 151 rewards and FCA has issued 45. GM has resolved 267 reports submitted by participants.

Security through obscurity is a really bad idea.

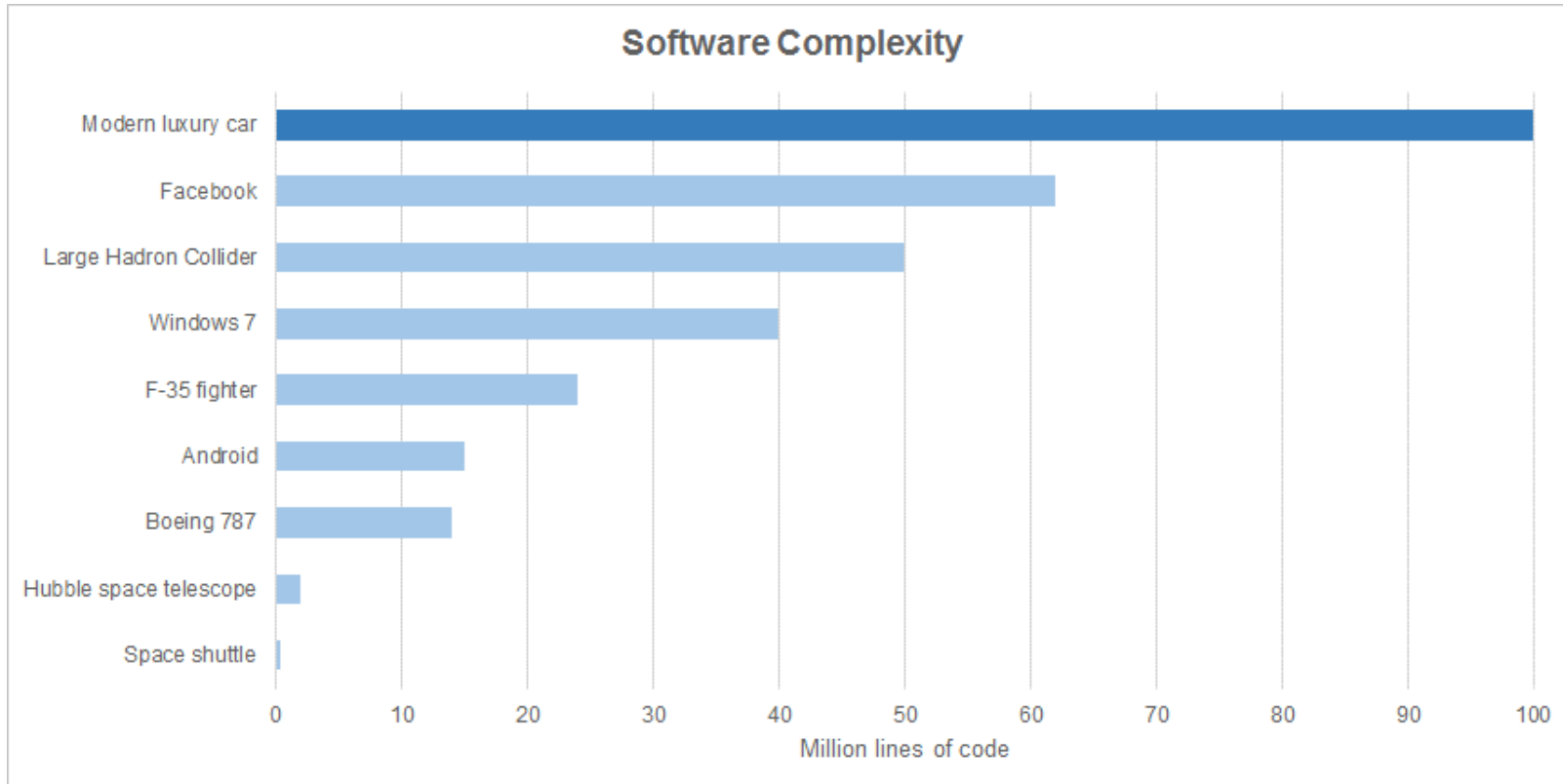
– Jeff Massimilla, Chief Product Cybersecurity Officer, General Motors



IoT on wheels



Software complexity



In the United States alone, over 37,000 people die annually in road crashes and an additional 2.35 million are injured or disabled.

Safety recall

may be necessary depending on service schedules.

What you must do to ensure your safety...

FCA is providing you two options. Your first option is to perform the software update yourself utilizing the enclosed USB drive, following the detailed instructions provided in this package. Your second option is to contact your dealer to schedule a service appointment. Please bring the enclosed USB Drive and this letter with you to your dealer.

FCA
FIAT CHRYSLER AUTOMOBILES

FCA
FIAT CHRYSLER AUTOMOBILES
Safety Recall R40
Secure USB
For one time use only

our dealer is unable to resolve please
er
id
hav
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reimbursement consideration FCA

0-853-1403.

on

mail y

IMPORTANT!

SAFETY RECALL NOTICE

IMPORTANT SAFETY RECALL INFORMATION

Issued in Accordance

★★★★★

Risks

1. **Unauthorized physical access to vehicle**
2. **Theft of information**
3. **Manipulating the vehicle's operation**
4. **Using vehicle's control units for other cyber attacks**

Extortion

Asymmetries of cyber risk

- **The same vulnerability can be exploited on all cars of the same type**
- **Crime requires fewer people than crime prevention does**
- **It takes decades of experience to build a secure product but only years of experience to break into one**

Risk or rescue?

OTA

Self-driving cars

Organizational culture

Virtualized environments


Automotive engineer +

- **Software engineer**
- **Database administrator**
- **API expert**
- **Security expert**

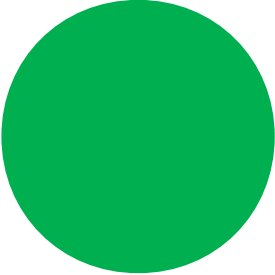
Public scrutiny is the only reliable way to improve security, while secrecy only makes us less secure.

- Bruce Schneier @schneierblog

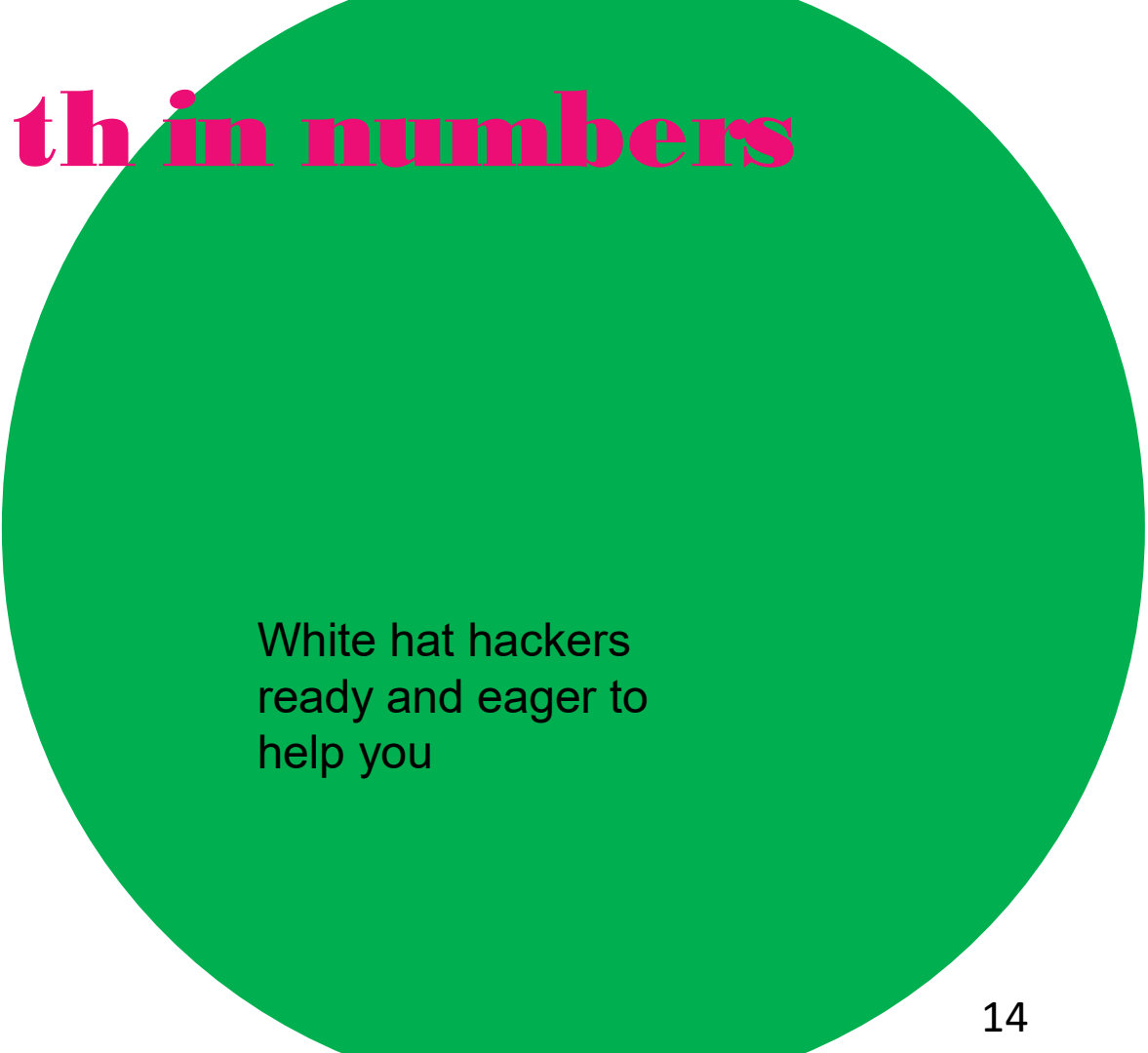
Strength in numbers



Security experts
in your
organization



Security experts
among all your
vendors and
contractors



White hat hackers
ready and eager to
help you

Bug bounty programs are an important part of the modern software development lifecycle.
– John Flynn, Uber CISO

Common concerns

- **Aren't we just inviting trouble?**
- **How do we know the whitehats from the blackhats?**
- **What if a hacker gets upset and publishes everything?**
- **What if we get too many vuln reports?**
- **What if we don't get useful vuln reports?**

HackerOne



STRONGEST COMMUNITY

The world's largest community of white-hat hackers & the best elite hackers. Over \$10m paid in bounties to hackers.



LARGEST CUSTOMER BASE

Over 600 programs with leading organizations such as Uber, Twitter, Square, Github, New Relic, Adobe, Kaspersky Lab, General Motors, DoD.



MOST ADVANCED PLATFORM

Advanced software platform for vulnerability coordination, payments, analytics & metrics, integration, etc. Provides the highest signal-to-noise ratio in the industry.

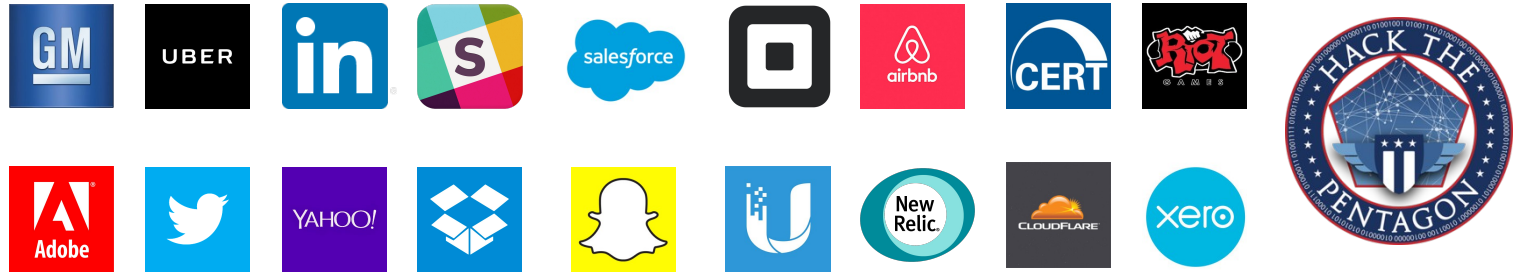


FULL TURNKEY SERVICES

Highly skilled team to handle the full management of the lifecycle of your program, ensuring success from day one.



Sample customers of HackerOne



Hack the Pentagon



"We know that state-sponsored actors and blackhat hackers want to challenge and exploit our networks. We know that.

What we didn't fully appreciate before this pilot was how many whitehat hackers there are who want to make a difference, who want to help keep our people and our nation safer."

Ash Carter
Secretary of Defense

Why an open perspective is essential to security

To be clear, bad guys are taking shots at us every day of the week. They're not waiting for us to provide a legal avenue for them to enter.

What's been lacking is a way to allow friendly hackers to help us. By allowing the good guys to help us, we'll finally level the playing field, and get ahead of the problem instead of just playing defense.

Openness means playing offense and going for the win.

Conclusions

- **Security happens in openness**
- **Security is achieved through collaboration**
- **Delays and inactivity harm security**
- **Security of shippable products is different from security of online services**
- **Security considerations need to be part of the entire SDLC**



Thank you!

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