RSA Conference2018
San Francisco | April 16 – 20 | Moscone Center

MATTERS NOW

SESSION ID: **TV-R01**

WHY DID WE MAKE SECURITY SO HARD?

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Advanced?

People aren’t using basic yet

The Mathematical Mesh

- Open Specification
- MIT License Reference code
- Contemporary approach
  - JSON / Ed448/Curve448 / Web Service / etc.
  - Untrusted cloud service (end-to-end security)

- http://mathmesh.com/

Bad security is worse than no security

The best security is the security you use

PREVIEW
PROGRAM
datavideo Digital Video Switcher SE-500

Usability labs tell you how users behave in usability labs

Ask nothing of the user

Any instructions you can write for the user

Can be turned into code and executed by the machine

Automate Certificate issue and rollover

Personal PKI

- Cost: Long term signature key

- Each user requires
  - Long term master signing key
  - Short term application profiles

What if?

Key Escrow

- Cost: Master Escrow Key

- Each user requires
  - Long term master signing key
  - Long term master escrow key
  - Short term application profiles

Offline Master Root

- Cost: Intermediate PKI layer

- Each user requires
  - Master Profile
    - Long term master signing key
    - Long term master escrow key
  - Current Profile
    - Administrative signing key
  - Short term application profiles

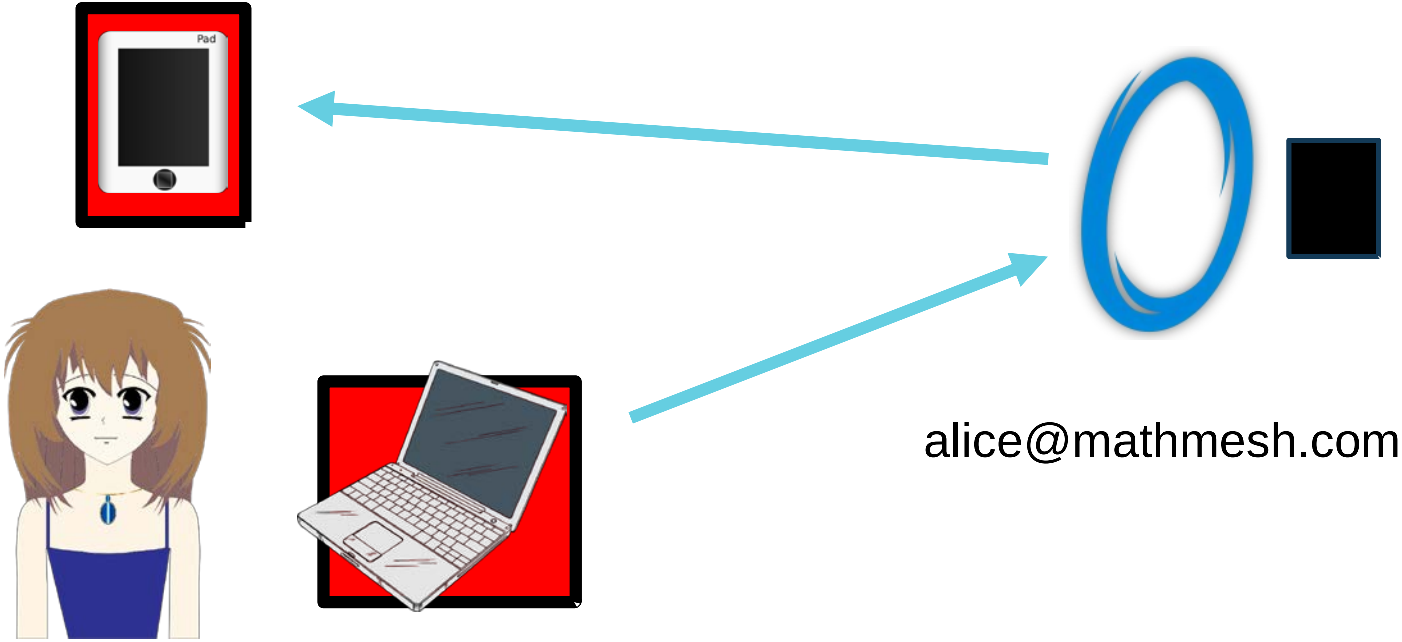
MacBook Pro
A touch of genius.
MacBook
Light. Years ahead.

Offline Master Root

- Cost: Profile per device

- Each user requires
  - Master Profile
    - Long term master signing key
    - Long term master escrow key
  - Current Profile
    - Administrative signing key
  - Short term application profiles
  - Device profiles

Connection Protocol



alice@mathmesh.com

Hypothesis

- It is possible to solve any security usability issue by introducing an additional layer of PKI

Application profiles

Current applications

- SSH
- S/MIME
- OpenPGP
- XMPP (planned)

New applications

- Mesh/Recrypt
  - Data at rest encryption (DARE)
- Mesh/Catalog
  - Contacts/Credentials/2nd factor
- Mesh/Unify

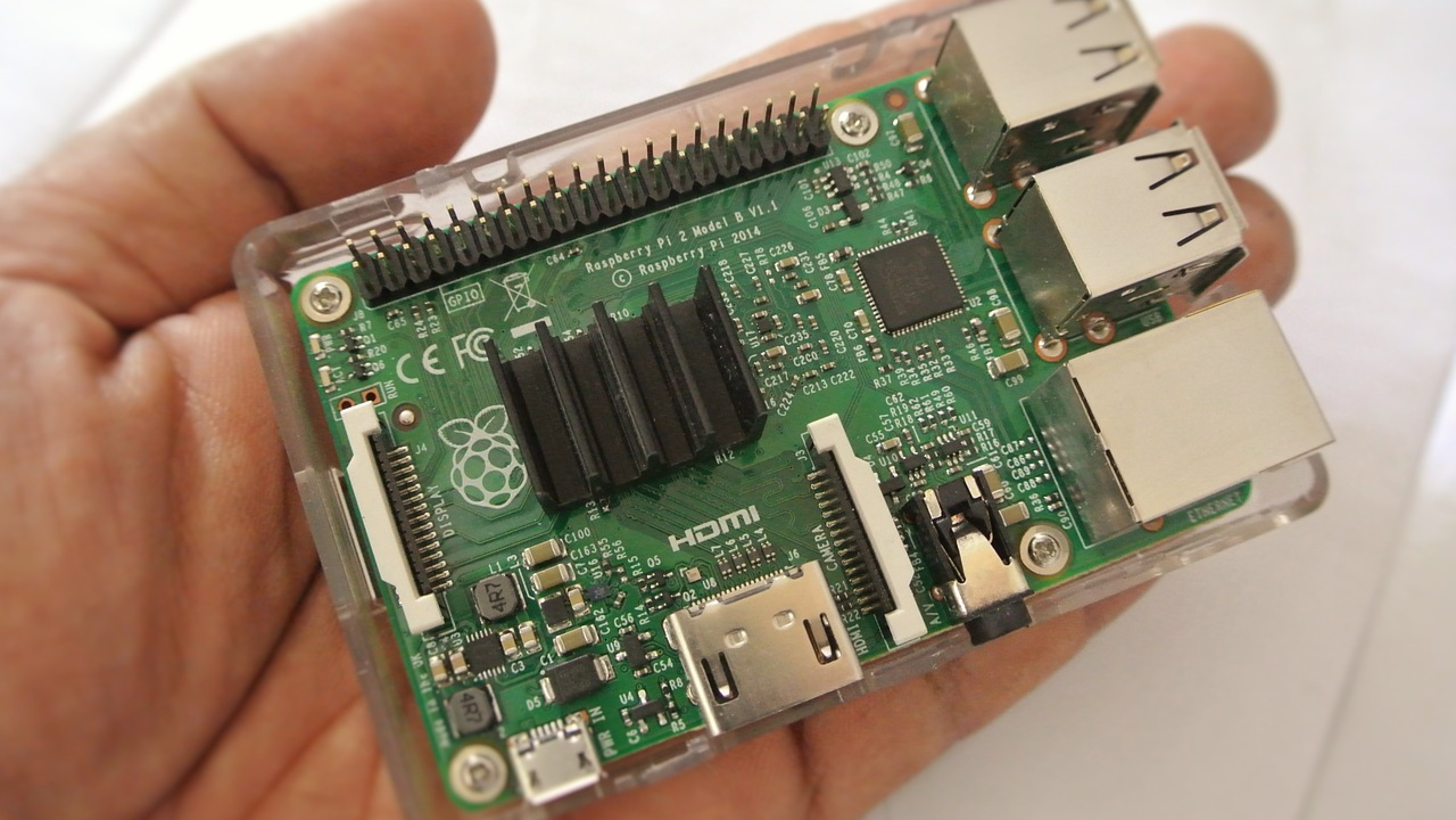
Killer Application?

How scripts leak credentials

```
#!/bin/bash
Username="Fred"
Password=“ItsGonnaLeak"
```

Why did we make security so hard?

ZGV 5842


Raspberry Pi 2 Model B V1.1
© Raspberry Pi 2014
GPIO
RUN
DISPLAY
HDMI
CAMERA
A/V
PWR IN
ETHERNET
USB
4R7

Apply

- Demand Effortless Security
- Choices:
  - Consider Mathematical Mesh as a Proof of Concept
  - Mesh-Enable your applications

http://mathmesh.com./