Hacking Google ChromeOS

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WhiteHat SECURITY

Who are we?

Kyle & Matt are both part of the Threat Research Center at WhiteHat Security and manually assess a large portion of WhiteHat’s 4,000+ websites.

- Matt:
  - *Application Security Engineer turned Team Lead.*
  - *Background in Penetration Testing as a Consultant.*
  - *Bachelor of Science in Computer Science from Adelphi University*
- Kyle:
  - *Application Security Specialist*
  - *Primary focus on Offensive Security Research*
  - *Likes to push the Big Red Button*

WhiteHat Security Company Overview

- **WhiteHat Security: end-to-end solutions for Web security**
- **WhiteHat Sentinel: SaaS website vulnerability management**
  Combination of cloud technology platform and leading security experts turn security data into actionable insights for customers
- **Founded in 2001; Sentinel Premium Edition Service launched in 2003**
- **400+ enterprise customers, 4,000 sites under management**
- **Most trusted brand in website security**

ChannelWeb
20 Coolest Cloud Security Vendors

Deloitte. 2008
Technology Fast 50
Silicon Valley

Social Security Blogger Awards 2010 at Security Bloggers Meet-Up @ RSA Conference

RED HERRING WINNER 100 N. AMERICA

2010 OnDemand Top 100 Private Companies Competition

Inc. 500

2007 InfoWorld CTO 25

BANK TECHNOLOGY NEWS btn
The FutureNow List

Google Cr-48 Beta Laptop

- First Chrome OS dedicated device
- Application to be a Beta Tester open to public
- WhiteHat one of few security companies to test it first

Chrome OS

"The time for a Web OS is now" – Eric Schmidt

What we know:

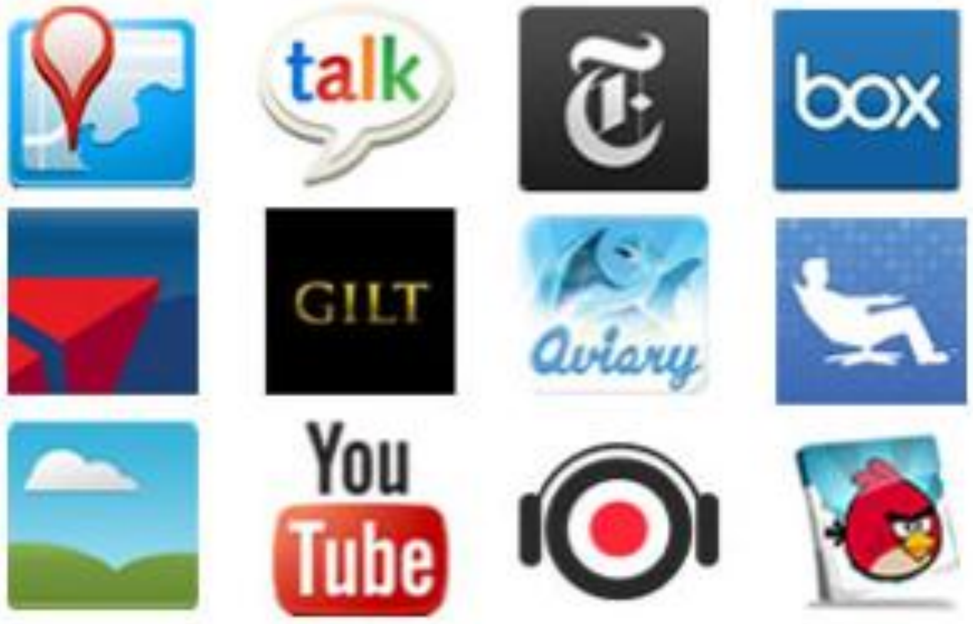
- Revolves around the browser
- Virtually nothing stored locally
- Cloud heavy (re: reliant)
- *Fast!*

Chrome OS (cont’d)

Nothing stored locally = no usual software suspects.

Mobile = App Crazy

Chrome OS = Extension Crazy



In order to get usability / functionality out of a locked up device user’s must use what is available.

What Does A Hacker See?

New attack surface!

With all of these new extensions that aren’t necessarily developed by Google or any reputable company, security vulnerabilities are bound to be plentiful.

Let the Hacking Begin!

ScratchPad

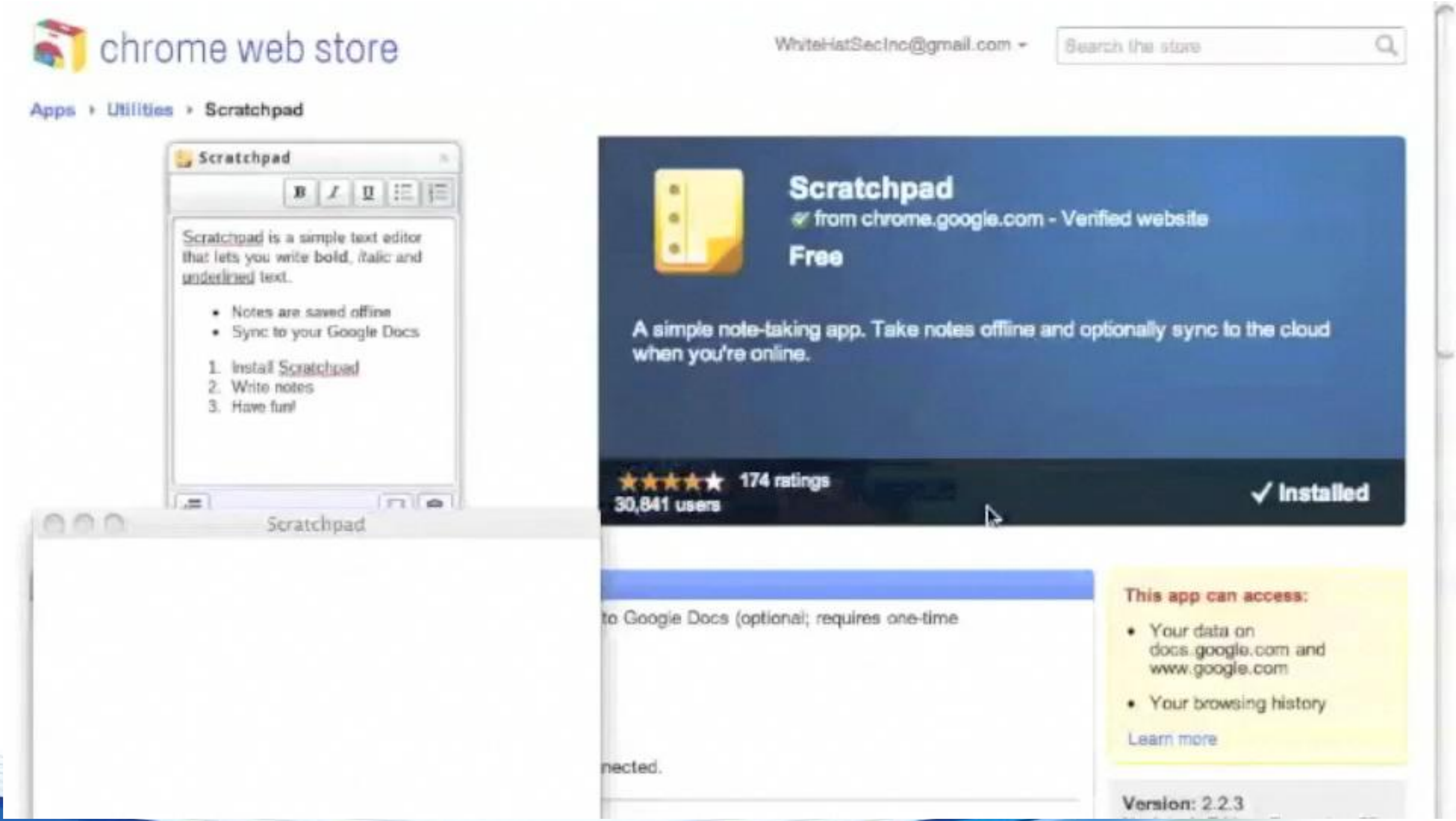
Preinstalled note-taking extension

Auto Sync feature to Google Docs “ScratchPad” Folder

Google Docs “Feature” – Folder/Doc sharing. No permission needed!

ScratchPad Video demo

Google fixed Scratchpad XSS very quickly but we have a video demo.



Scratchpad is a simple text editor that lets you write bold, italic and underlined text.

- Notes are saved offline
- Sync to your Google Docs

1. Install Scratchpad
2. Write notes
3. Have fun!

Scratchpad

from chrome.google.com - Verified website

Free

A simple note-taking app. Take notes offline and optionally sync to the cloud when you're online.

★★★★★ 174 ratings

30,841 users

to Google Docs (optional; requires one-time

nected.

This app can access:

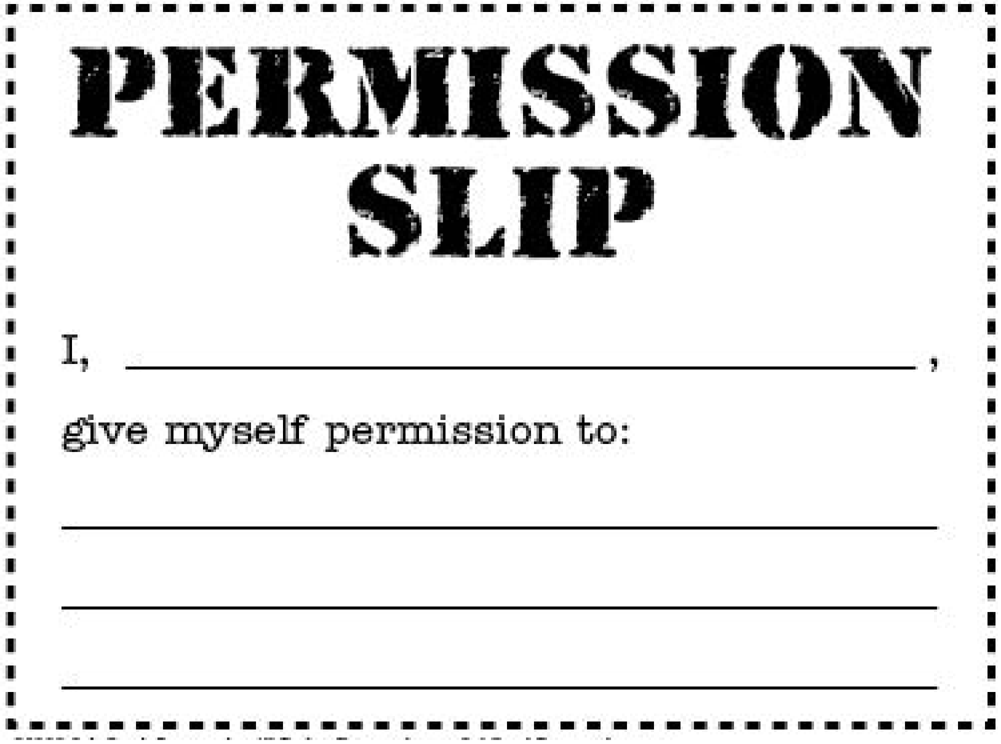
- Your data on docs.google.com and www.google.com
- Your browsing history

Learn more

Version: 2.2.3

Permission Structure

Why are Extensions any different?



PERMISSION SLIP

I, ______________________________,

give myself permission to:

____

____

____

- Individual extensions have unique permissions
- Use chrome.* API
- Permissions set by 3rd party developer
- Some extensions require permission to talk to every website
- Similar to Mobile Apps

Malicious Extension Demo

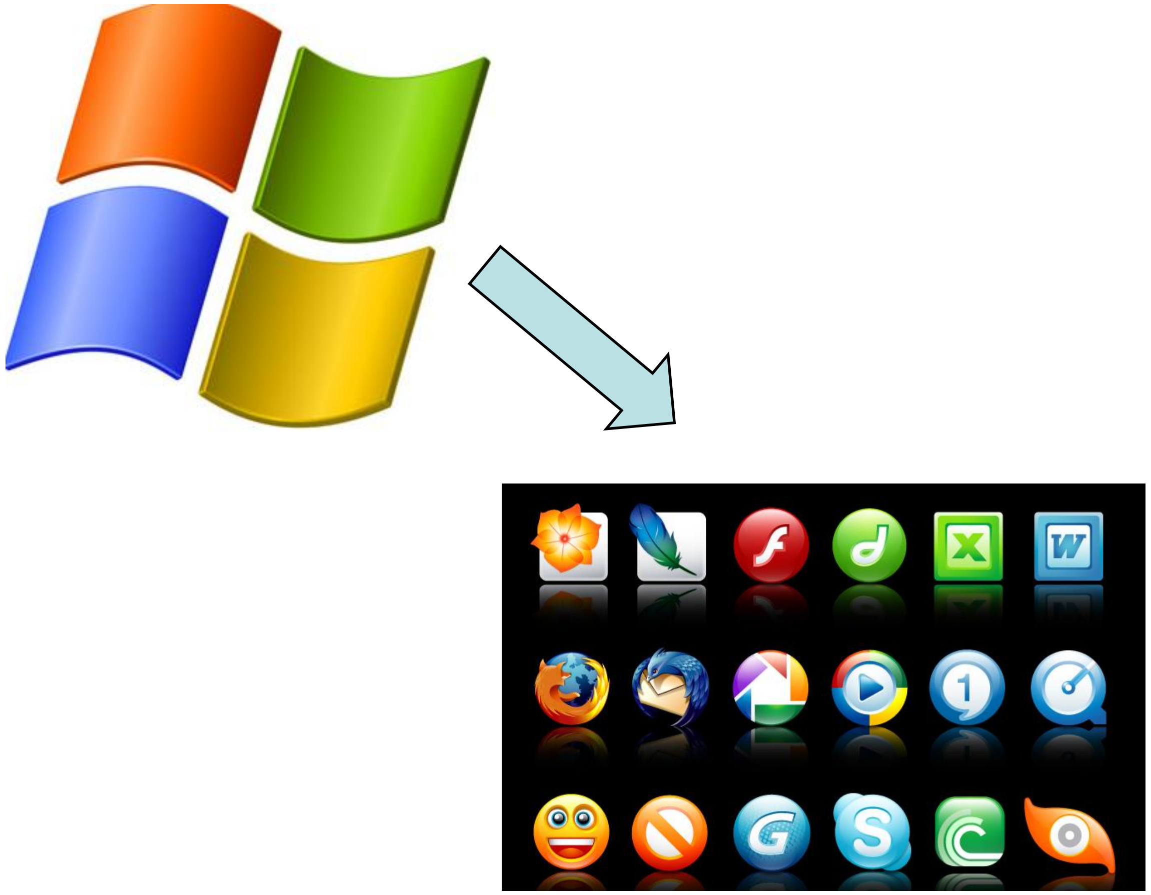
Saving this one for BlackHat.

What can we do with a very vulnerable extension with wide open permissions which do exist in the wild.

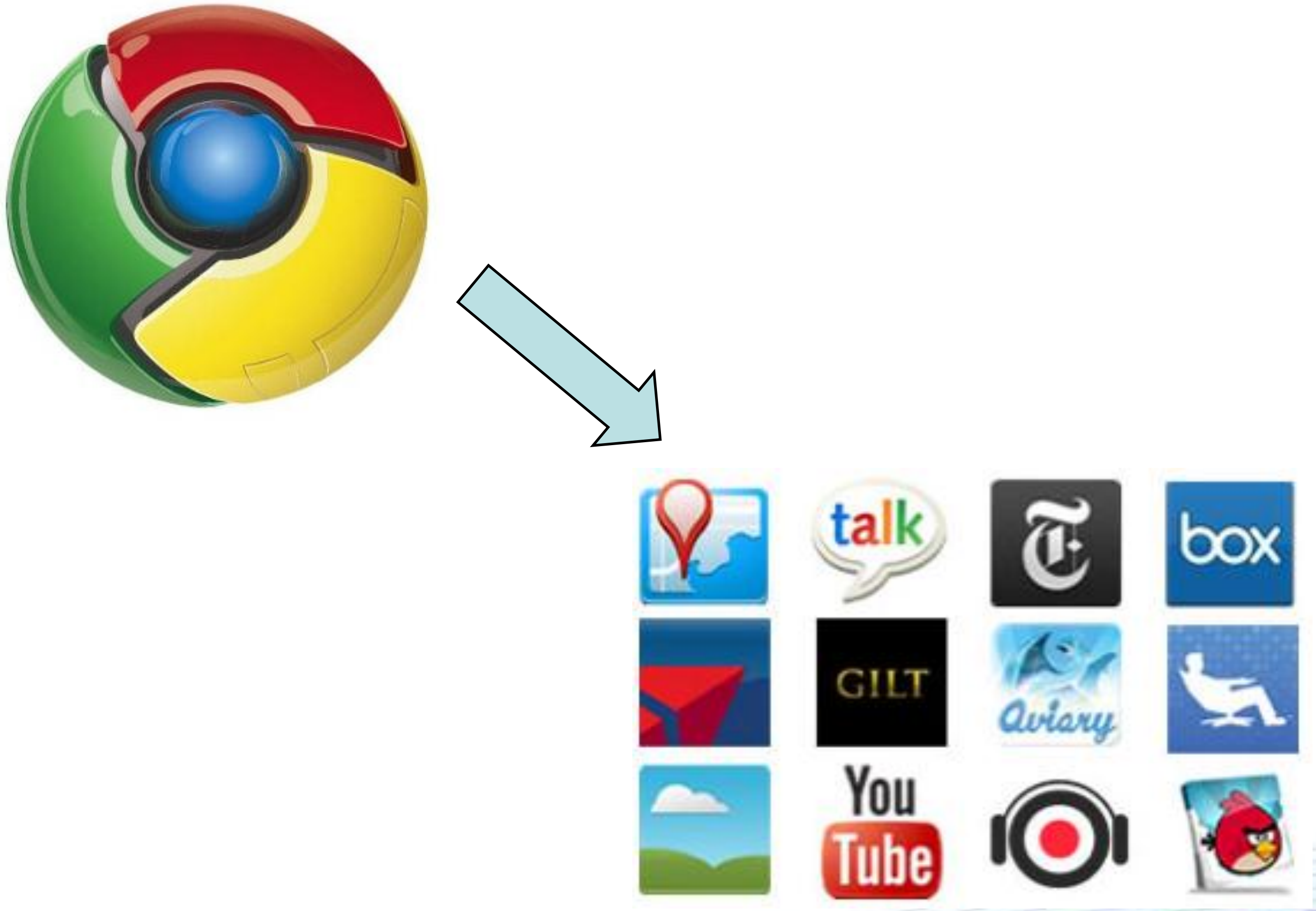
Browser -> Extension Trust Model

Taking the old Software Security Model and moving it to the cloud.

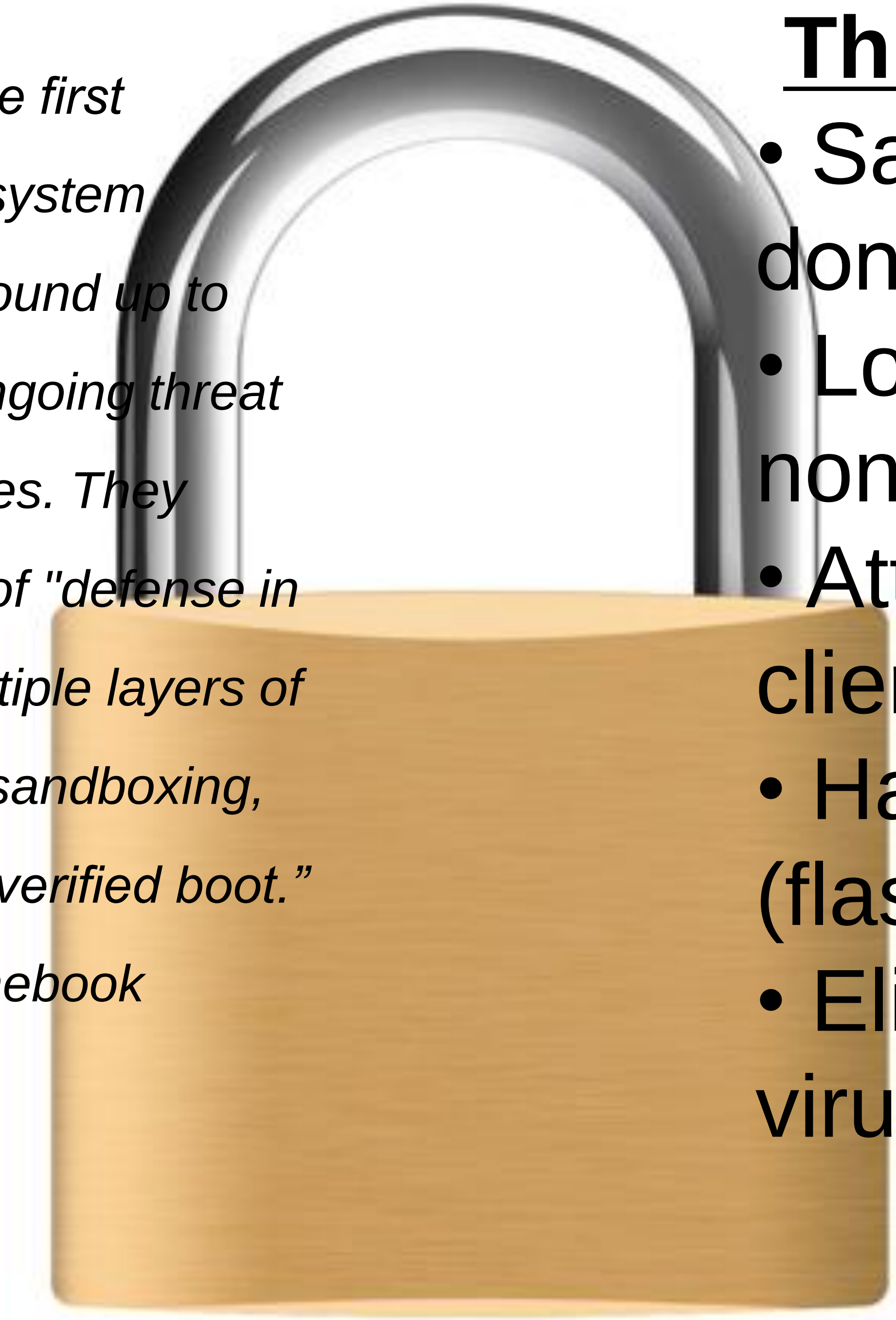
Software Security Model



Browser Extension Trust Model



Security Implications



"Chromebooks run the first consumer operating system designed from the ground up to defend against the ongoing threat of malware and viruses. They employ the principle of "defense in depth" to provide multiple layers of protection, including sandboxing, data encryption, and verified boot."

– Google.com/Chromebook

Things Done Very Well

- Sandboxing tabs so they don't talk to each other
- Local storage is virtually non existent
- Attack surface limited to client side browser exploits
- Handles own plugins (flash, pdfs, etc.)
- Eliminates most modern virus / malware threats

Thank You!

Q&A?

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