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# Curing operating system blindness



# A long time ago...

In Dog Years

- macOS is the only first class citizen
- Commercial management tool
- Unmanaged Windows VM available
- What's security?



## Not so long ago...

We found our way

- macOS is our single focus
- Munki is implemented
  - Established Patching SLA
- Source control is implemented
  - Global Visibility
  - Code Review
  - Cross Team Function
- Strong focus on Security

## **What are we trying to achieve?<sup>TM</sup>**

- Keep Airbnb's, our host's and our guest's information secure
- Enable Airbnb employees to be productive

**What tools do we have?**

## What tools do we have?

- **Munki** Software updates
- **Crypt** FileVault key escrow
- **Sal** Reporting
- **Puppet** Configuration management
- **microMDM** DEP / Bootstrapping

**And then we bought a company**

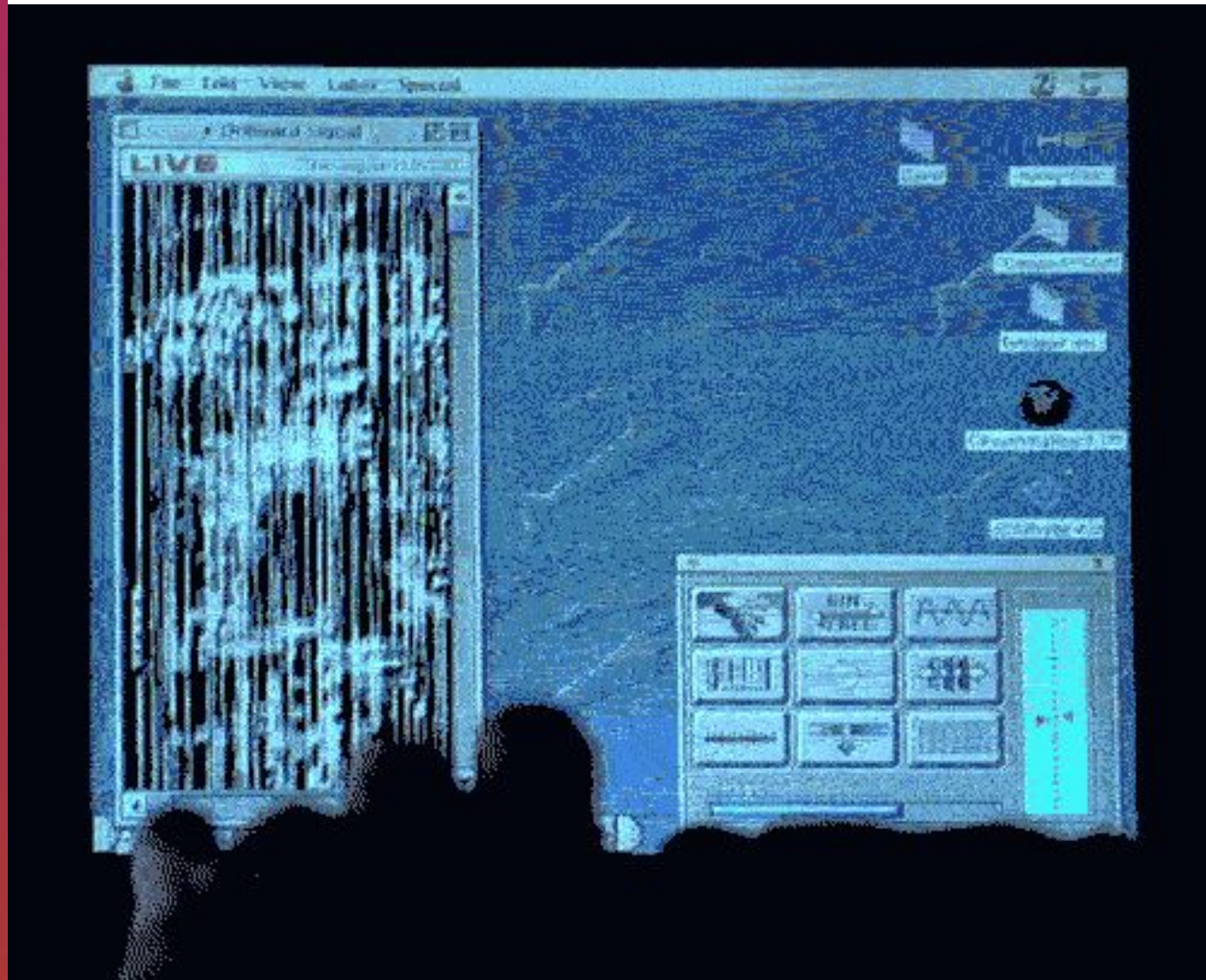


**“Hey, guys.... How do you feel about  
managing Windows?”**

HORRORFIXXX



**“Just give them a  
Mac”**



**“Just give them a  
Mac”**

- We don't have processes to manage another platform
- We don't have time to manage another platform
- We don't *want* to manage another platform



**Their entire product was built on a Microsoft stack**

# **Financey software**






***Are we the baddies?***



**Be a host**

**We need to support Windows**

A cartoon illustration of Fred Flintstone in a wrestling ring. He has a stern expression, with furrowed brows and a slight frown. He is wearing a white collared shirt under a red and orange patterned vest, a large purple gemstone necklace, and a white wristband with a purple gemstone on his left wrist. The background is a dark blue night sky with a city skyline and a bright orange and red streak across the middle. The text "Let's Yabba-Daba" is written across his chest in a stylized, bold font with a blue outline and a slight shadow.

**Let's Yabba-Daba**



## macOS

Patching (Munki)  
Configuration (Puppet)  
FileVault (Crypt)  
Reporting (Sal)  
MDM (microMDM)

## Windows

Patching (??)  
Configuration (Puppet)  
BitLocker (??)  
Reporting (??)  
MDM (??)

# How do we do it on a mac?

Install a Certificate

```
define certificates::root (  
  String $source,  
  String $sha1,  
  String $trust_level = 'trustRoot',  
)
```

A Certificate is pretty simple on a mac

It takes a source, a sha1, and a trust level

```
certificates::root { 'My Internal Cert':  
  source      => "puppet:///modules/internal_certs/my_cert.crt",  
  sha1        => '5bc875fa06f5105b36f0913f199ce98e67d24895',  
  trust_level => 'trustRoot'  
}
```

## How does it look on Windows?

What did you expect?

```
sslcertificate { "mycert.crt":  
  name      => 'mycert.crt',  
  password  => 'password123',  
  location  => "${::facts['puppet_vardir']}/certificates",  
  thumbprint => upcase($sha1)  
}
```

- Windows and Mac have the same implementation on the surface
- Providers handle the OS specifics under the hood
- The properties of a certificate don't change between Operating Systems

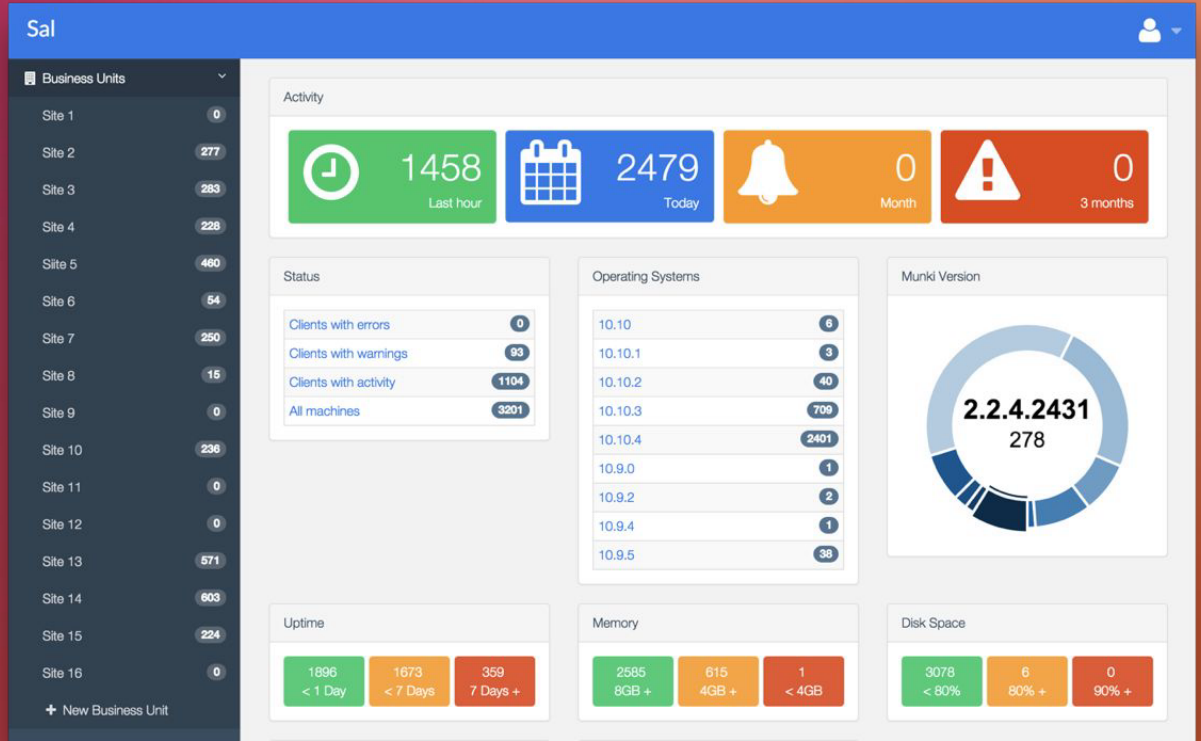
**Stop offering the OS**  
**Start offering the service**



IF A CLIENT DOESN'T  
CHECK IN



DOES IT EXIST?





# Gosal

A Windows Client for Sal

- Powershell exec
- Go Struct
- POST Request

[github.com/airbnb/gosal](https://github.com/airbnb/gosal)

**But... We have a third operating system**

# Chrome OS

## Why Chrome OS?

- No more imaging / provisioning
- Built in patching
- Verified Boot
- Decent devices are really cheap

**But you can only do what Google lets you,  
right?**



## Apps

## Extensions

Learn Basics

Getting Started  
Tutorial

Samples

Develop Extensions

Distribute Extensions

Chrome Platform  
APIs

**JavaScript APIs**

Manifest File  
Format

Web APIs

Permission  
Warnings

Optional  
Permissions

Match Patterns

Help

## Native Client

## Store

# JavaScript APIs

Chrome provides extensions with many special-purpose APIs like `chrome.runtime` and `chrome.alarms`.

## Stable APIs

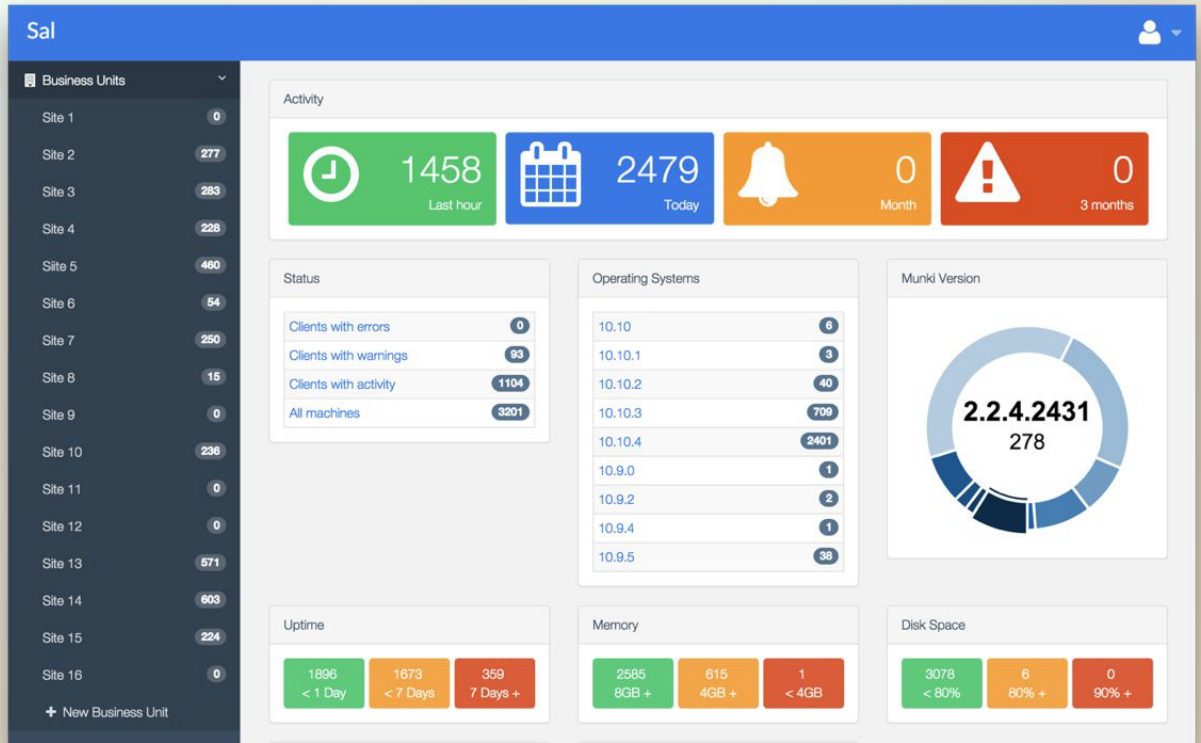
**Contents**
**Stable APIs**
**Beta APIs**
**Dev APIs**
**Experimental  
APIs**
**API conventions**

Name	Description	Since
<code>accessibilityFeatures</code>	Use the <code>chrome.accessibilityFeatures</code> API to manage Chrome's accessibility features. This API relies on the <a href="#">ChromeSetting prototype of the type API</a> for getting and setting individual accessibility features. In order to get feature states the extension must request <code>accessibilityFeatures.read</code> permission. For modifying feature state, the extension needs <code>accessibilityFeatures.modify</code> permission. Note that <code>accessibilityFeatures.modify</code> does not imply <code>accessibilityFeatures.read</code> permission.	37
<code>alarms</code>	Use the <code>chrome.alarms</code> API to schedule code to run periodically or at a specified time in the future.	22
<code>bookmarks</code>	Use the <code>chrome.bookmarks</code> API to create, organize, and otherwise manipulate bookmarks. Also see <a href="#">Override Pages</a> , which you can use to create a custom Bookmark Manager page.	19
<code>browserAction</code>	Use browser actions to put icons in the main Google Chrome toolbar, to the right of the address bar. In addition to its <code>icon</code> , a browser action can also have a <code>tooltip</code> , a <code>badge</code> , and a <code>popup</code> .	19

IF A CLIENT DOESN'T  
CHECK IN



DOES IT EXIST?





Search...

- Advanced Search
- Chrome OS Devices
- Overview
- Facter
- Conditions
- Application Inventory
- Computer



# Chrome OS Device

Report :: 2018-02-11 22:14

Pending Installs ▾

## Notifications



0 Errors



0 Warnings



0 Pending Installs

## Machine Details

<b>Model:</b>	Google Pixelbook
<b>Processor:</b>	Intel(R) Core(TM) i3-5005U CPU 2.00GHz
<b>RAM:</b>	8 GB
<b>Serial:</b>	A0200B86-AAA0-00A0-0A0A-AAAA00000
<b>OS version:</b>	64.0.3282.144
<b>Deploy Status:</b>	Deployed

## Management Tools

Search...

Q

Advanced Search

Back

Export CSV

Application Inventory for Machine: Chromebook

Show 25 entries

Search:

Name	Bundle ID	Bundle Name	Install Count
1Password X (beta)	khgocmkkpikpnmmkgmdnfckapcdkgfaf		1
Chromebook Recovery Utility	jndclpdbaamdhoneochobihbiiimdgai		1
ChromeSal	ohnahlfkoaeknjhcnhcjgpemccoklg		1
Cisco WebEx App for Chrome	fceempjejlfaadkgdacpfhheknndlcjl		1
Cisco WebEx Extension	jllhmfgmfgelfomenelglieghnjghma		1
GlobalProtect	nicidmbokaedpmoegdbcebhcnchpegcdc		1
Google Docs	fgbakocaamckmahiegoajipleckeppgm		1
Google Drawings	comidegkhoojfbjhioinljilfjolcgj		1
Google Forms	kdnjchdofihcohancegijjogehalhmkba		1
Google My Maps	bpfrmlkhmlbehehljkbernjlidclmhlpb		1
Google Play	kornhbcfkdcgmcdoenjcjheifdiabikfi		1
Google Sheets	eeipohcoolhaigpjlfnkjbbdjgkpenc		1
Google Sites	phhmhpgbmkjhhocndpfbhpbakkdagdil		1
Google Slides	holaiadndlekbinndlbnaiddjlcpfobi		1
Google Verified Access by Duo	lojeokmpinkprmpbakfkpgfhpapbgdnd		1
Lucidchart Diagrams	oilengkmkbjllbiopfmekaaffieepokm		1

# ChromeSal

- [graham.at/chromesal](http://graham.at/chromesal)
- [github.com/salopensource/chromesal](https://github.com/salopensource/chromesal)
- Requires Sal 3.3.0

**What's next?**

# **Package management for Windows**

## **Windows package management**

- An army of helpdesk people to install things by hand
- Chocolatey Enterprise
- Munki for Windows?

**Managing Chrome OS is GUI based**

**More information**



**Questions?**

**[graham.at/movember](https://graham.at/movember)**

