

Claremont Colleges

## Scholarship @ Claremont

---

Library Staff Publications and Research

Library Publications

---

Summer 6-20-2015

### Effortless Building Census

Sam Kome

*Claremont Colleges*

Follow this and additional works at: [https://scholarship.claremont.edu/library\\_staff](https://scholarship.claremont.edu/library_staff)



Part of the [Business Administration, Management, and Operations Commons](#), [Business Intelligence Commons](#), [Library and Information Science Commons](#), [Management Information Systems Commons](#), and the [Management Sciences and Quantitative Methods Commons](#)

---

#### Recommended Citation

Kome, Sam, "Effortless Building Census" (2015). *Library Staff Publications and Research*. 34. [https://scholarship.claremont.edu/library\\_staff/34](https://scholarship.claremont.edu/library_staff/34)

This Presentation is brought to you for free and open access by the Library Publications at Scholarship @ Claremont. It has been accepted for inclusion in Library Staff Publications and Research by an authorized administrator of Scholarship @ Claremont. For more information, please contact [scholarship@claremont.edu](mailto:scholarship@claremont.edu).



# Effortless Building Census

Sam Kome  
Claremont Colleges Library

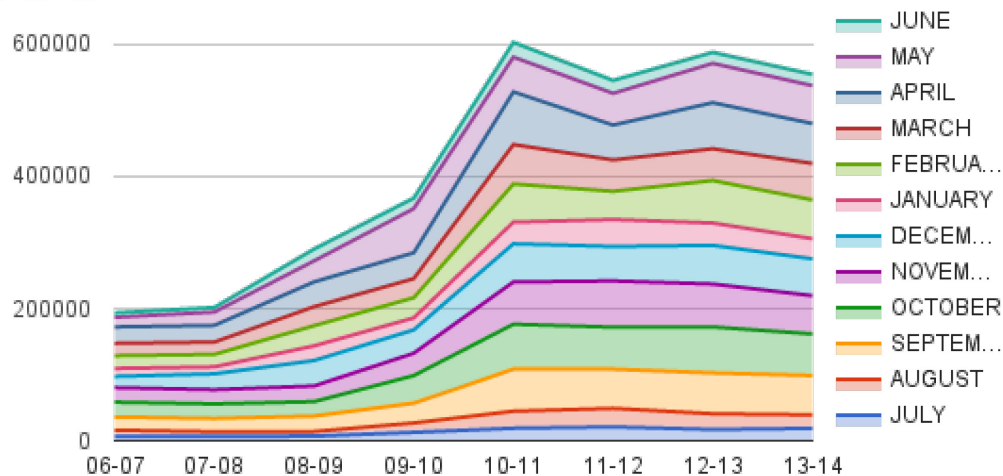
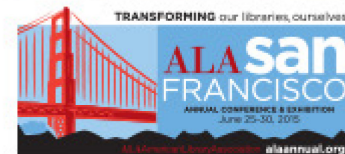
#alaac15

@skome

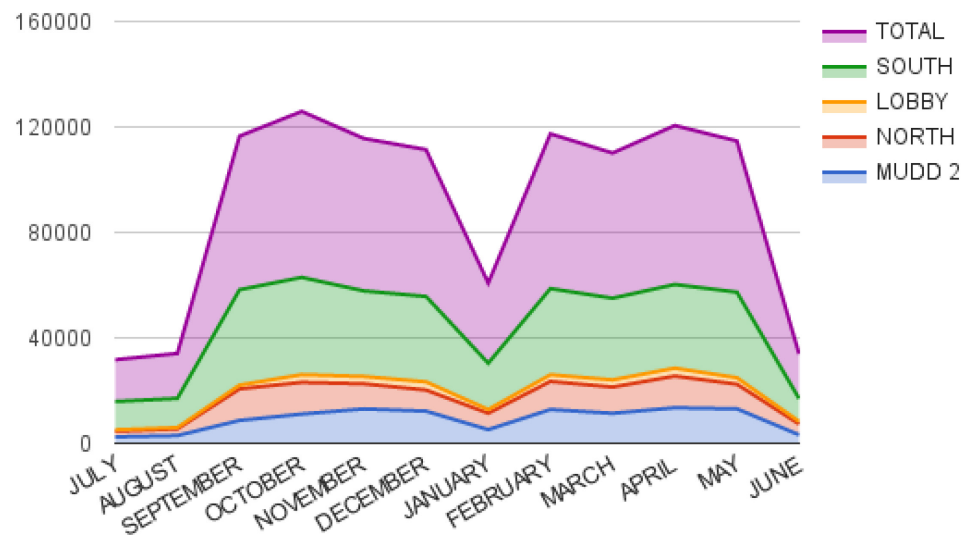


# Gates

## Gate Counts by Month



Honnold / Mudd Gates 2013 - 14



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

MONTH

# Gates

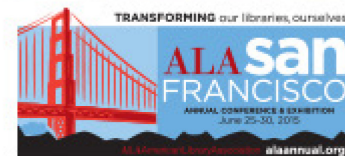


- Basic, better-than-nothing indication of relative activity
- Low frequency
- No (campus) affiliation
- Problematic with multiple entrances



# Headcounts

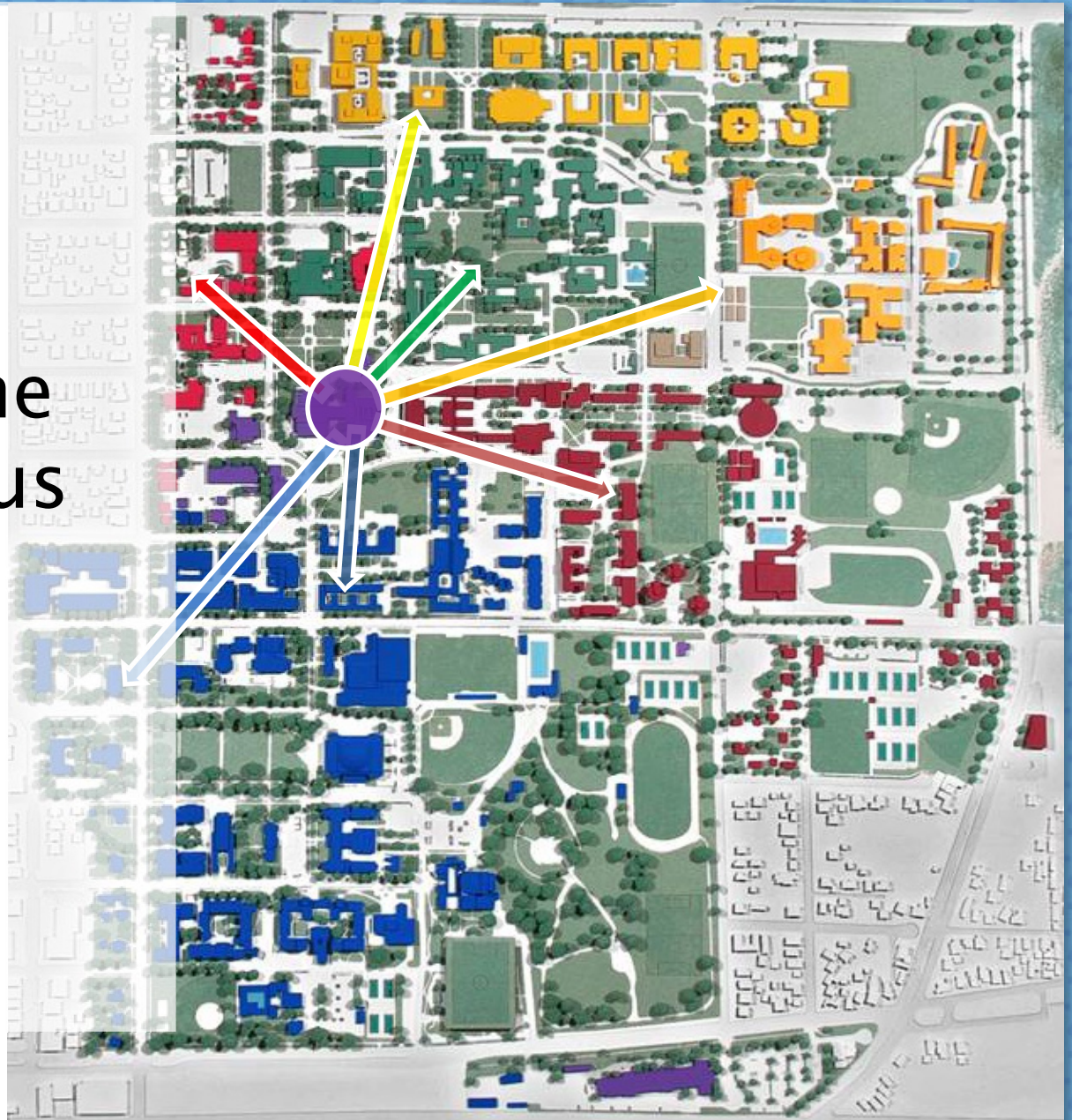
- High Effort
- Low frequency
- Inconsistent collection
- No campus affiliation



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

**We need:**  
Granular Time  
Home Campus  
Building  
locations  
Mobiles?





# We want to collect these variables:

# People

Time - continuously

Campus affiliation

Building location

Activity indication

Computing hardware, OS

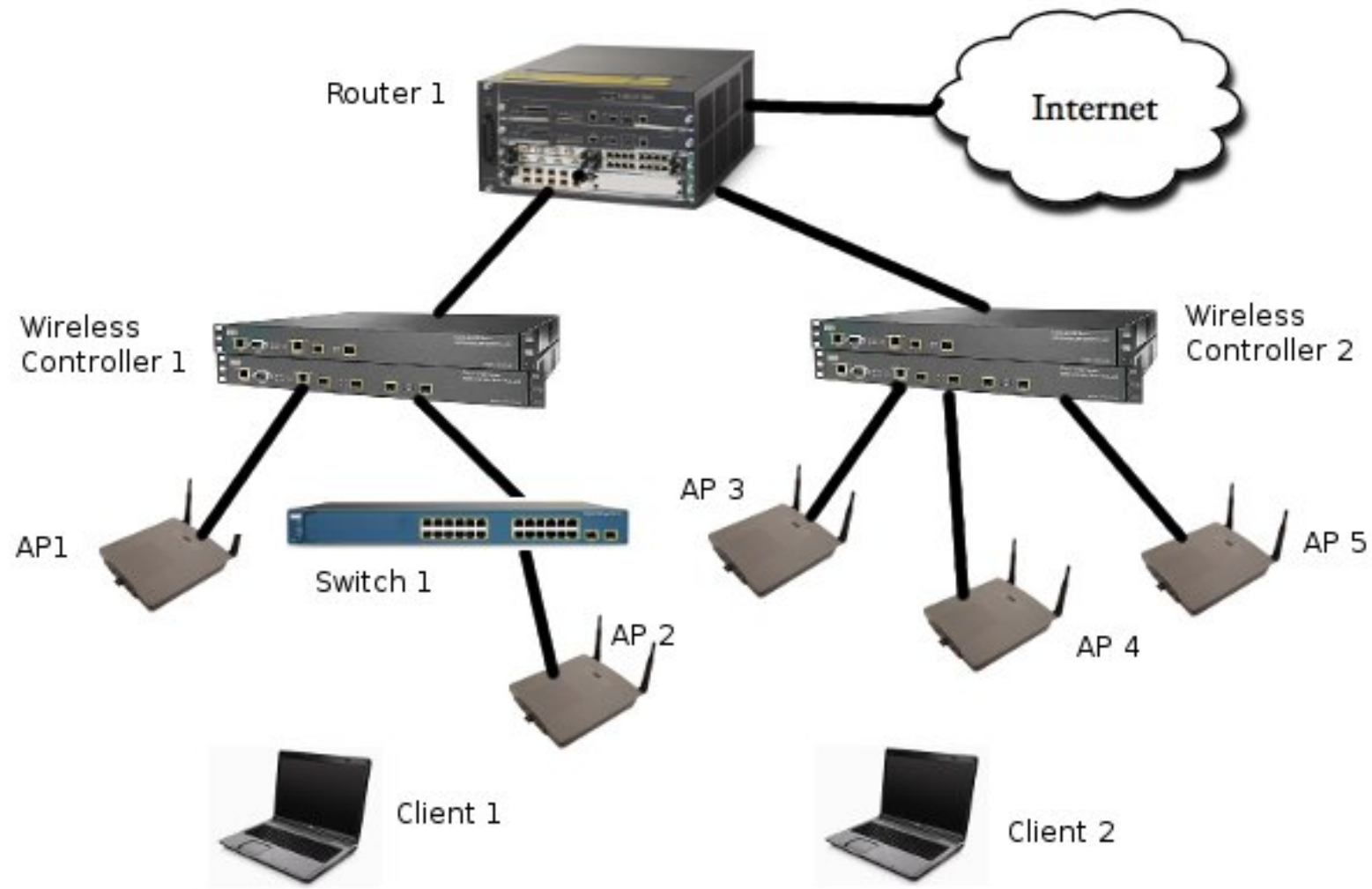
#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).





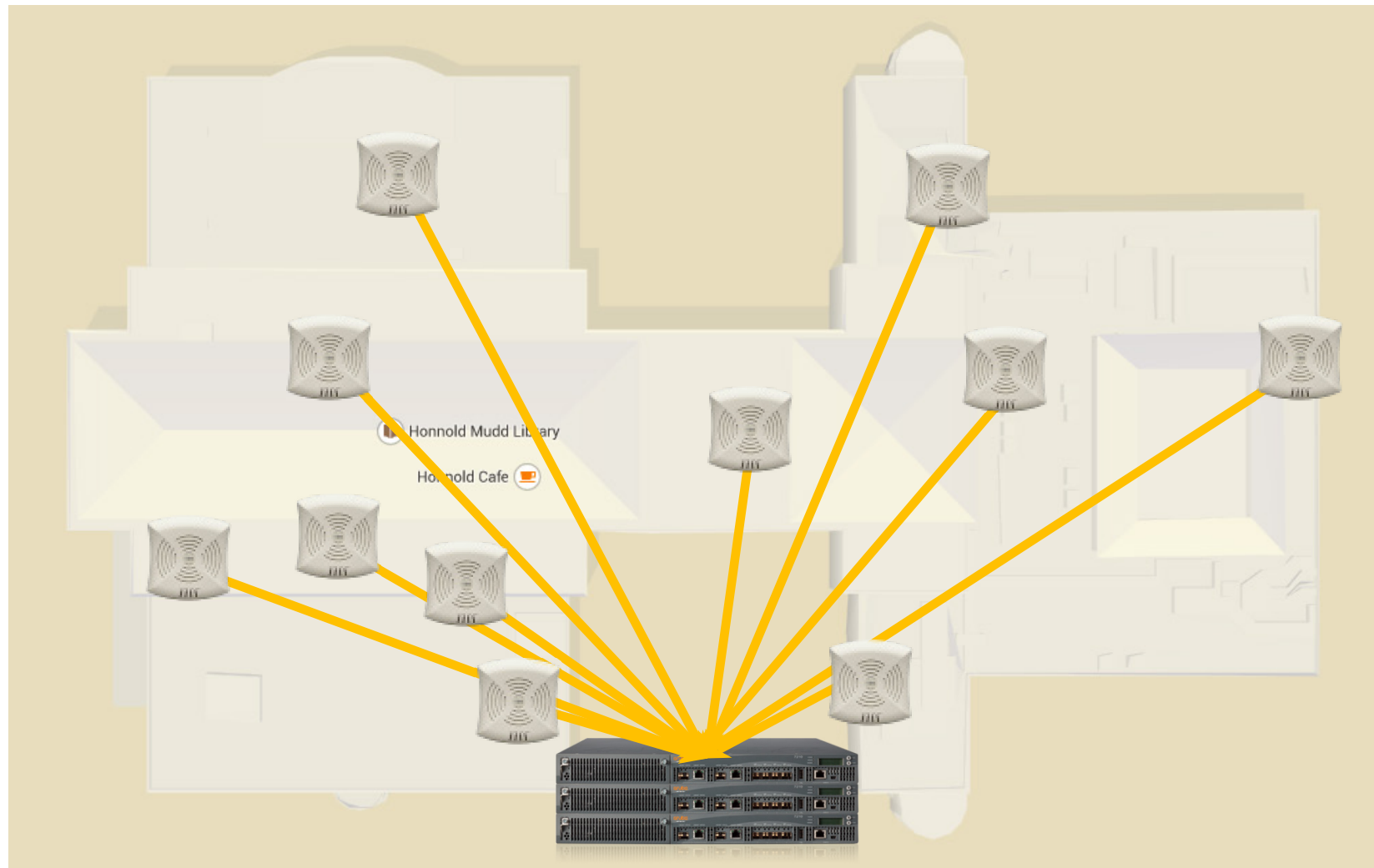
# Centralized Wireless



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

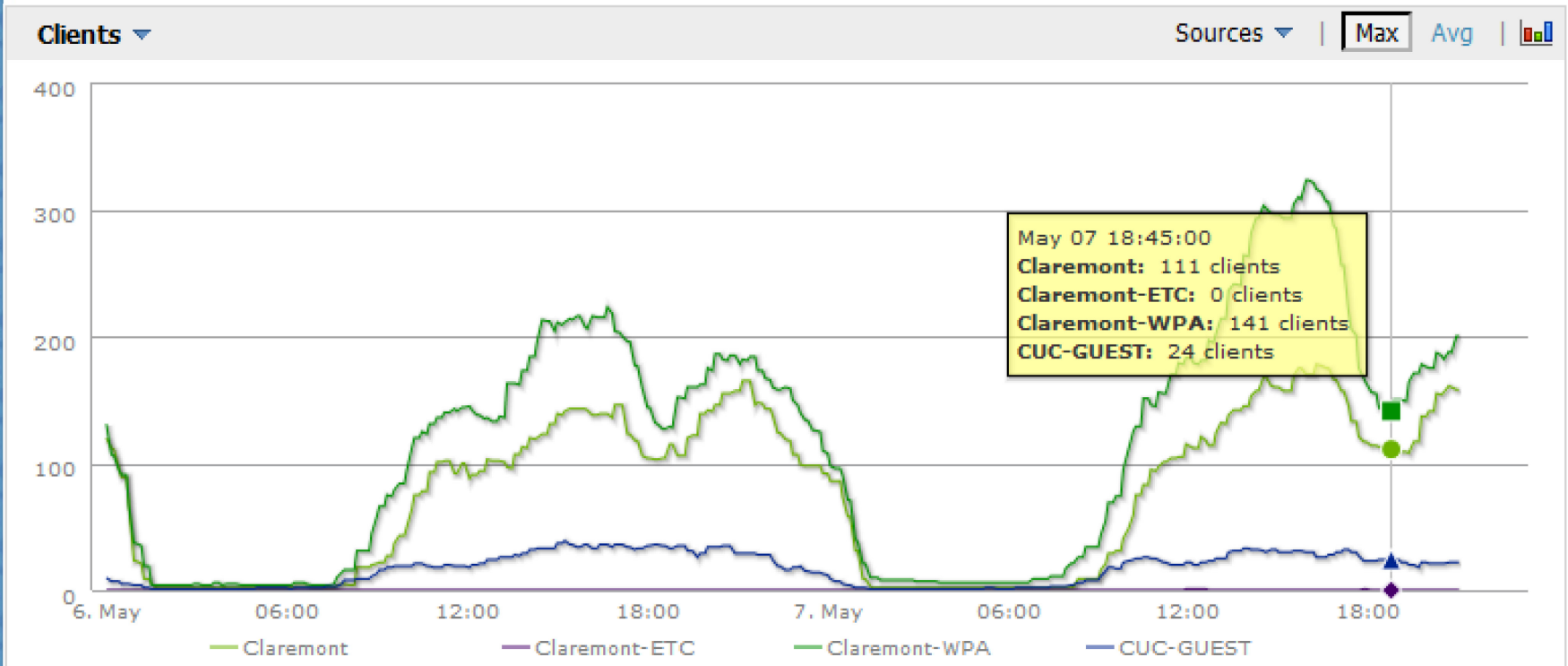
# Centralized Wireless



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

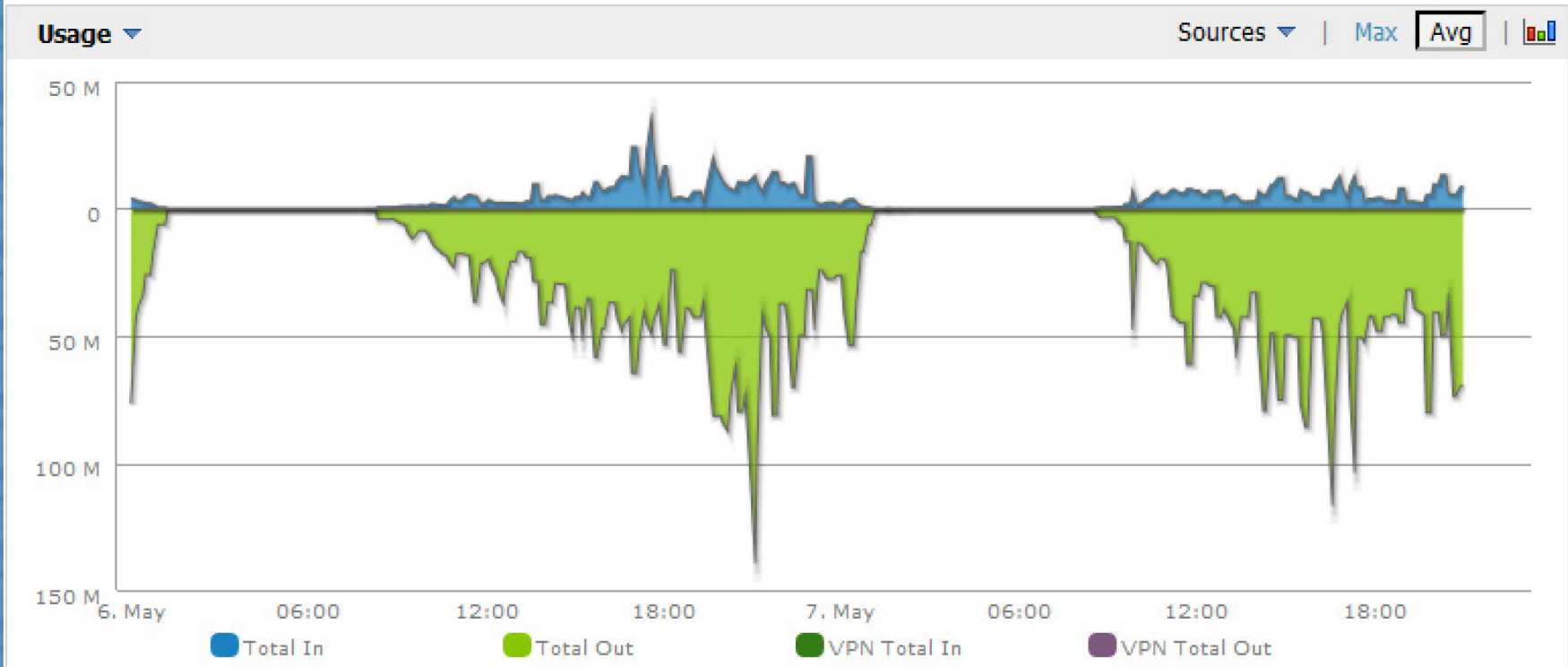
# Standard Reports



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# Standard Reports



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

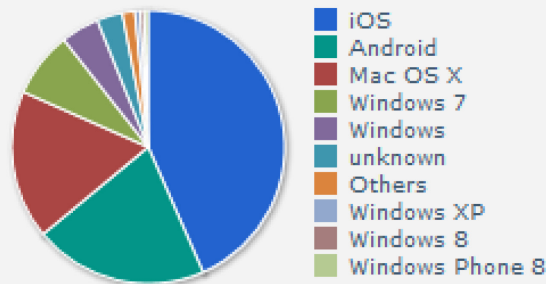
# Standard Reports



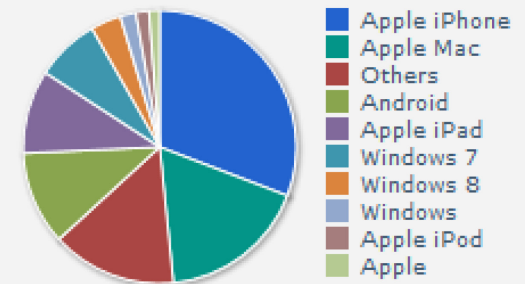
## Clients

### Distribution of 1283 Clients

#### By Operating System



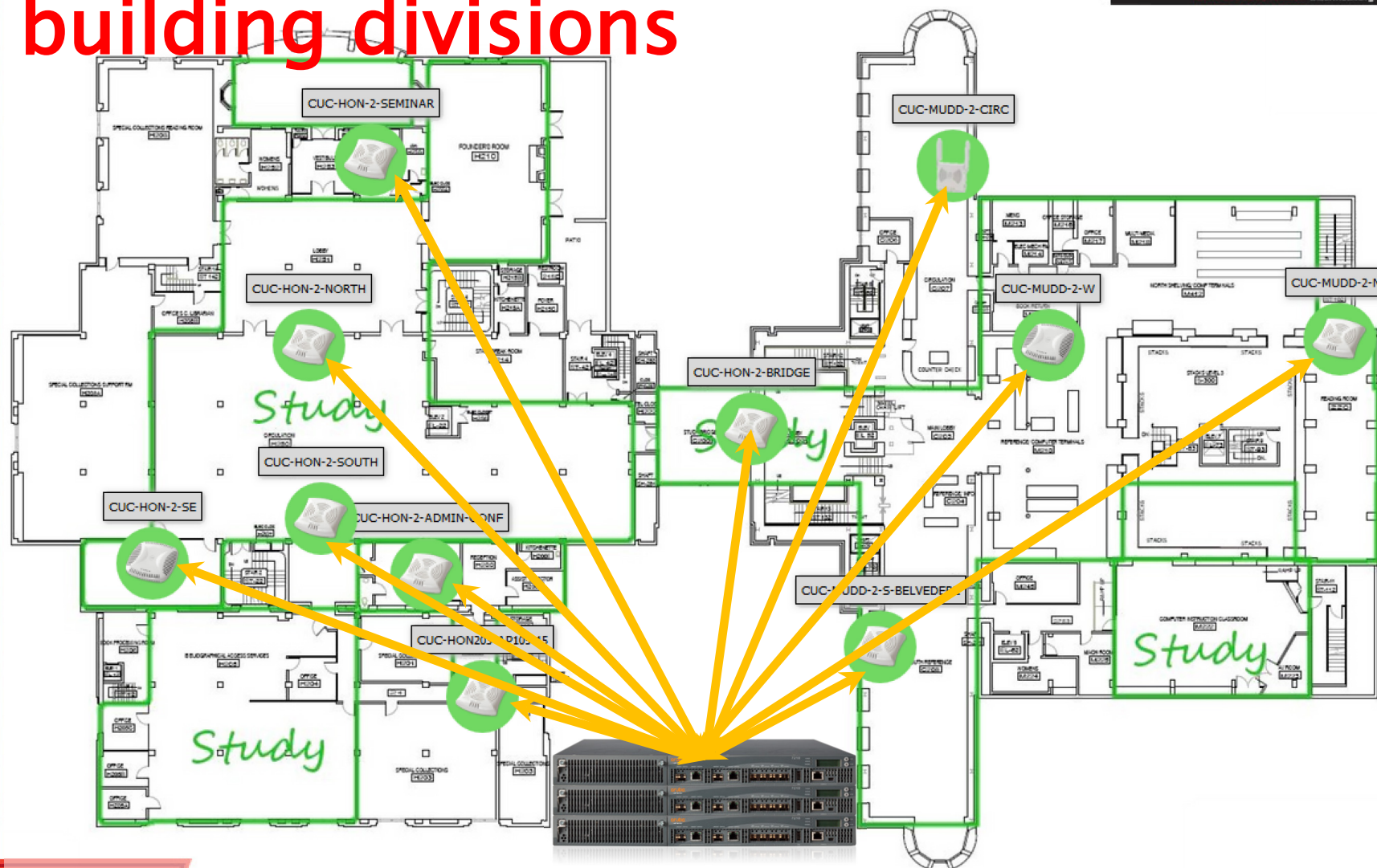
#### By Device Type



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

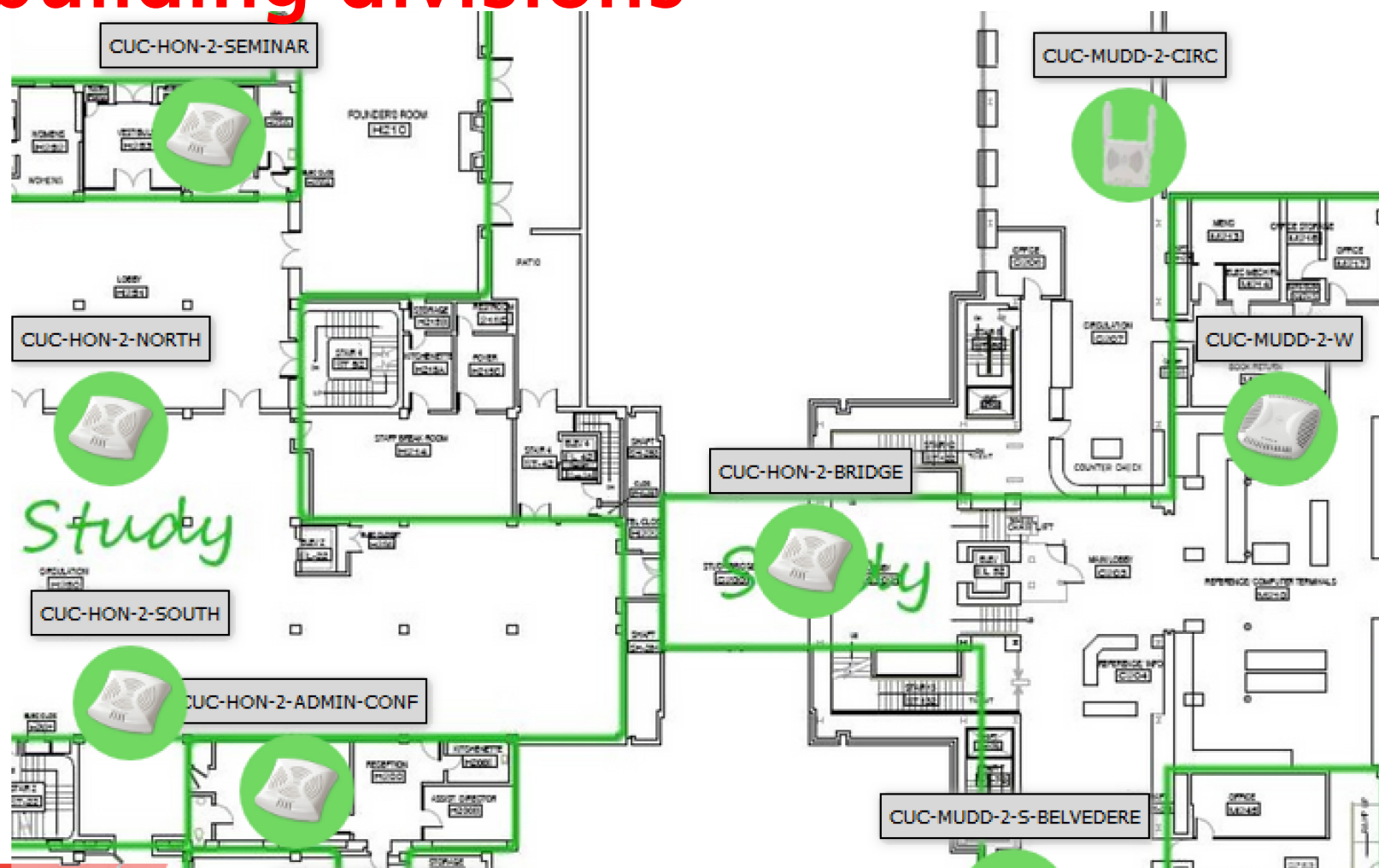
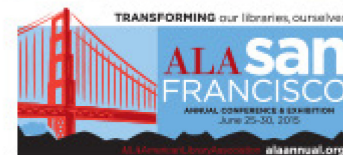
# Naming convention: building divisions



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

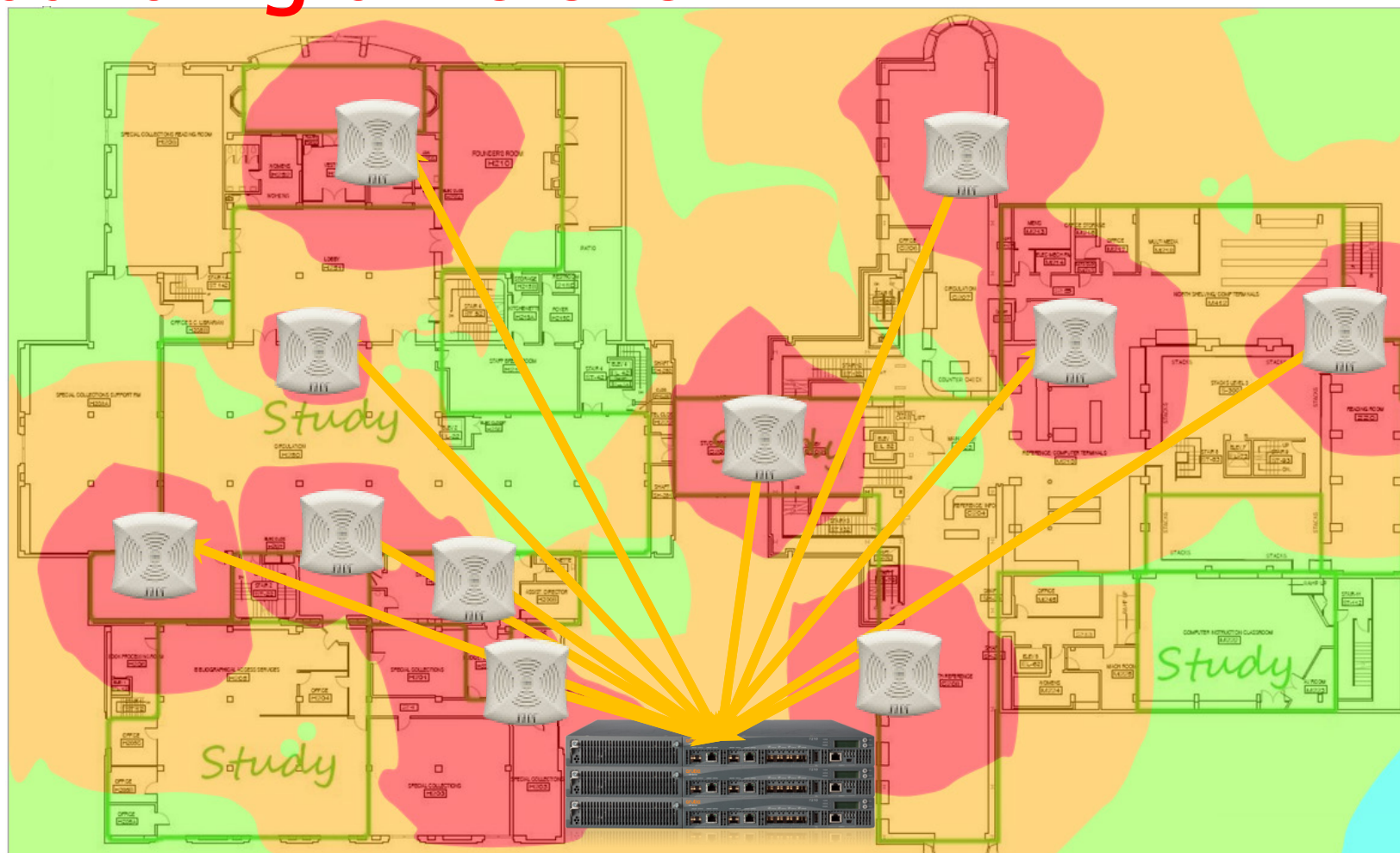
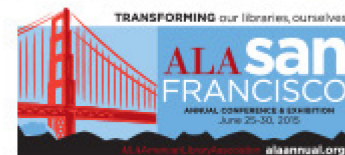
# Naming convention: building divisions



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# Naming convention: building divisions

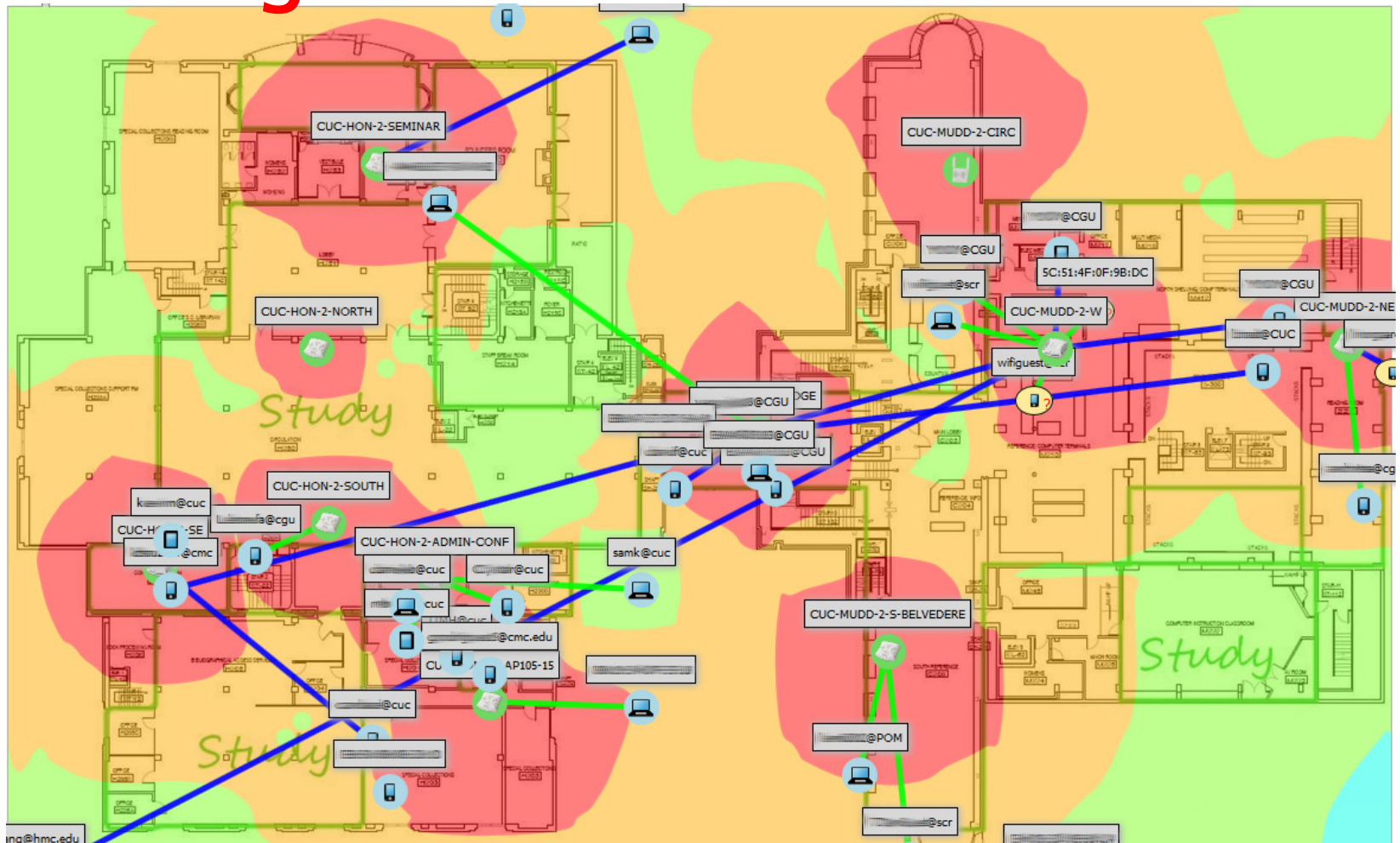


#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).



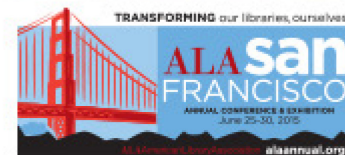
# Naming convention: building divisions



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# Custom Reports



## Custom Options

Drag the desired widgets from the Available Options list into the Selected Options list. Widgets within the Selected Options can be reordered.

### Available Options

- AppRF
- Aruba License
- Capacity Planning
- Client Inventory
- Client Session
- Configuration Audit
- Device Summary
- Device Uptime
- Inventory
- Match Event
- Memory and CPU Utilization
- Network Usage
- New Clients
- Port Usage
- RADIUS Authentication Issues
- RF Health
- Rogue Clients
- VPN Session

### Selected Options

- Client Session:** Session Data by SSID (List)
- Client Session:** Session Data by Client
- Client Session:** Summary

#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# Custom Reports



## Custom Options

Drag the desired widgets from the Available Options list into the Selected Options list. Widgets within the Selected Options can be reordered.

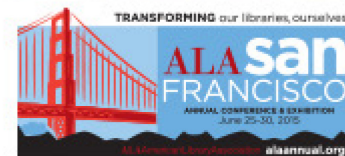
Available Options	Selected Options
<ul style="list-style-type: none"><li data-bbox="123 401 233 425">+ AppRF</li><li data-bbox="123 434 324 458">+ Aruba License</li><li data-bbox="123 466 369 491">+ Capacity Planning</li><li data-bbox="123 499 349 524">- Client Inventory<ul style="list-style-type: none"><li data-bbox="189 532 465 556">Matchable Clients Summary</li><li data-bbox="189 565 413 589">Device Type Summary</li><li data-bbox="189 598 610 622">Device Manufacturer and Model Summary</li><li data-bbox="189 631 500 655">Device Manufacturer Summary</li><li data-bbox="189 664 423 688">Device Model Summary</li><li data-bbox="189 696 320 721">OS Summary</li><li data-bbox="189 729 455 753">Device OS Detail Summary</li><li data-bbox="189 762 452 786">Network Vendor Summary</li><li data-bbox="189 795 455 819">Network Chipset Summary</li><li data-bbox="189 828 442 852">Network Driver Summary</li><li data-bbox="189 861 440 885">EAP Supplicant Summary</li><li data-bbox="189 893 413 918">Asset Group Summary</li><li data-bbox="189 926 446 951">Asset Category Summary</li><li data-bbox="189 959 388 983">Last SSID Summary</li><li data-bbox="189 992 450 1016">Last Aruba Role Summary</li><li data-bbox="189 1025 513 1049">Last Connection Mode Summary</li><li data-bbox="189 1058 452 1082">Last Auth. Type Summary</li><li data-bbox="189 1090 258 1115">Clients</li><li data-bbox="189 1123 465 1148">AOS Device Type Summary</li></ul></li><li data-bbox="123 1156 320 1180">- Client Session<ul style="list-style-type: none"><li data-bbox="189 1189 446 1213">Session Data by OS (List)</li><li data-bbox="189 1222 479 1246">Session Data by OS (Charts)</li><li data-bbox="189 1255 510 1279">Session Data by OS Detail (List)</li><li data-bbox="189 1288 542 1312">Session Data by OS Detail (Charts)</li><li data-bbox="189 1320 475 1345">Session Data by Model (List)</li><li data-bbox="189 1353 510 1378">Session Data by Model (Charts)</li><li data-bbox="189 1386 552 1410">Session Data by Manufacturer (List)</li><li data-bbox="189 1419 587 1428">Session Data by Manufacturer (Charts)</li><li data-bbox="189 1452 539 1428">Session Data by Device Type (List)</li><li data-bbox="189 1485 573 1428">Session Data by Device Type (Charts)</li><li data-bbox="189 1517 591 1428">Session Data by AOS Device Type (List)</li></ul></li></ul>	

# Custom Reports



MAC Address	14:1A:A3:73:08:76
Username	samk@cuc
Role	CLAREMONT-WPA-ROLE
Device Name	CUC-MUDD-3-KECK-2
Group	Access Points
Folder	Top > CUC > Honold Mudd Library > Third Floor
Device Location	-
Connect Time	5/5/2015 7:40
Disconnect Time	5/5/2015 11:07
Duration	3 hrs 27 mins
Total Traffic (MB)	6.92
Total Traffic In (MB)	2.66
Total Traffic Out (MB)	4.27
Avg Usage (Kbps)	4.86
Avg Signal (dBm)	-58.18
Avg Signal Quality	24
Vendor	Unknown
Connection Mode	802.11n (2.4 GHz)
SSID	Claremont-WPA
AOS Device Type	Android
Device Type	Android
Manufacturer	-
Model	XT1045
OS	Android
OS Detail	Linux; U; Android 4.4.4; XT1045 Build/KXB21.14-L1.63

# Analysis / Findings



Need	Have
Count	Counts of people and computers
Granular Time	Timestamp to the second
Campus Affiliation	Campus; Grad vs UG is trivial
Building location	Location to ~20 feet
Mobiles?	OS, Hardware manufacturer
Activity	Bandwidth Up/Down

#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).



# That \$64k Question

“How many patrons per device, or devices per patron?”

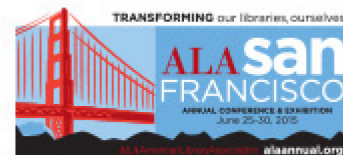
1.8

Devices per actual patron

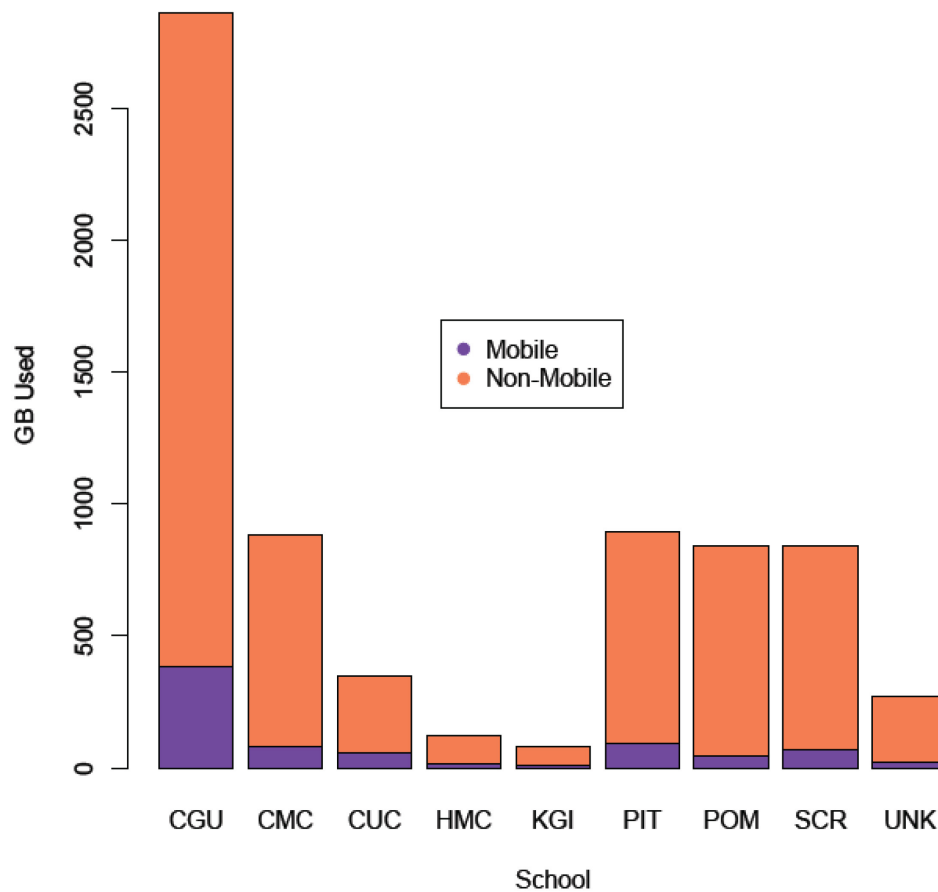
#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# Other findings



Mobile data used by School



#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).



# Other findings

Occasionally see too many (58) machine IDs per user id, i.e. password is being shared. We refer these to the home campus in order to protect both the patron and our resource license obligations.

Claremont's Mac/PC ratio is opposite the national market share, e.g. we see 60+% MacOSX/iOS and 30+% Windows/Linux/Android<sup>[1]</sup>.

**“Do our students...” Yes they do; they’re up on the 4<sup>th</sup> floor in large numbers, for hours.**

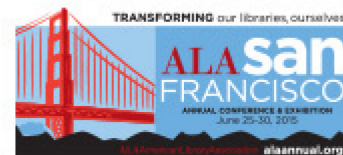


# Next Steps

- Automate ETL on a daily basis.
- And when we do; hash the ids:
  - `sha512().update('samk@cuc')`
  - `sha512().hexdigest()`
  - `cf83e1357eefb8bdf1542850d66d8007d620e4050b5715dc83f4a921d36ce9ce47d0d13c5d85f2b0ff8318d2877ec2f63b931bd47417a81a538327af927da3e`

# Questions?

## Thank You!

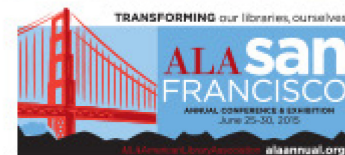


Please rate the presentation:  
<http://bit.ly/litaevals>

#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).

# References



1. <http://communities-dominate.blogs.com/brands/computers/>

#alaac15

Access available handouts at [ala.15.ala.org/sessions/handouts](http://ala.15.ala.org/sessions/handouts).