

# #ATM15 NETWORK

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Thursday March 5<sup>th</sup> 2015

# WARNING

**THE FOLLOWING WAS DONE WITH THE CO-  
OPERATION OF PATIENT USERS.  
DO NOT TRY SOME OF THIS AT HOME WORK!**

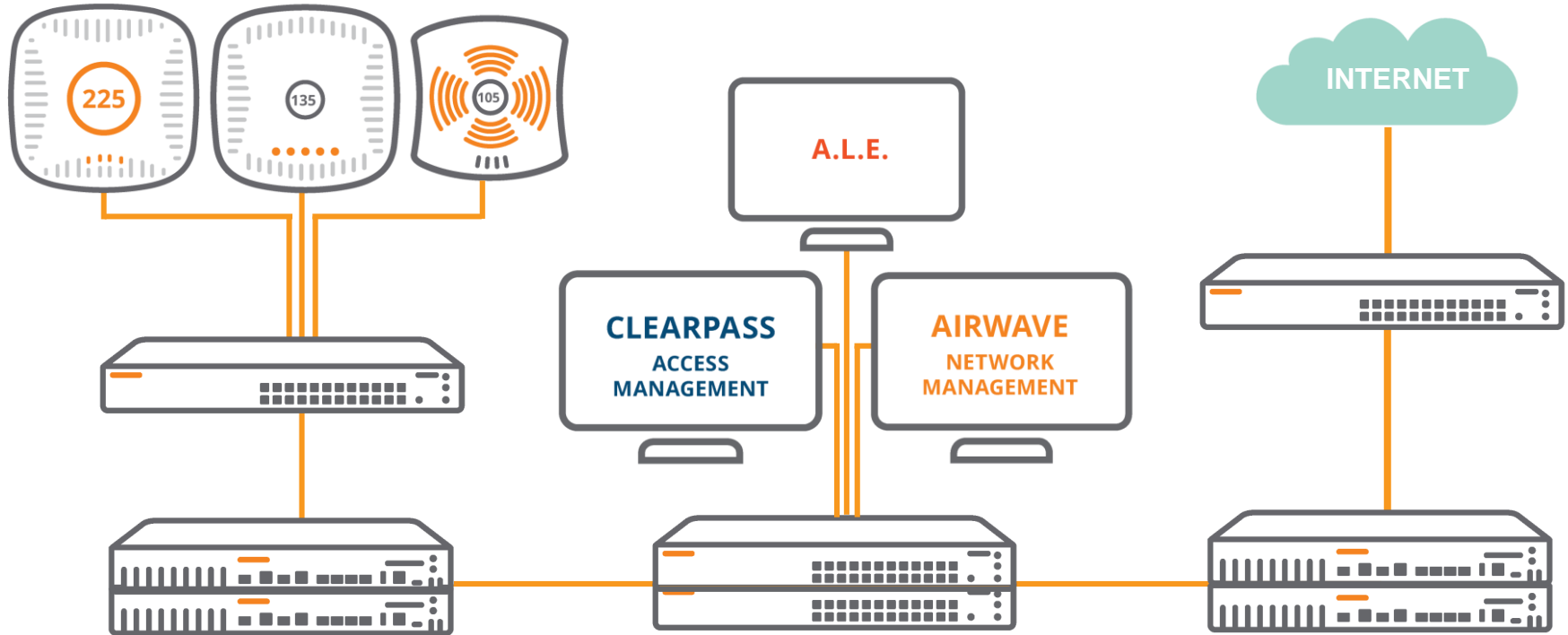
- **Event Network Design**
  - Network Layout
  - RF Planning
- **Configuration overview**
  - Controller configuration
  - CPPM configuration
  - BLE
  - Theatre design & configuration

- **Statistics**
  - RF stats
  - AppRF and general usage information
  - ClientMatch

# Network Design

# Network Layout

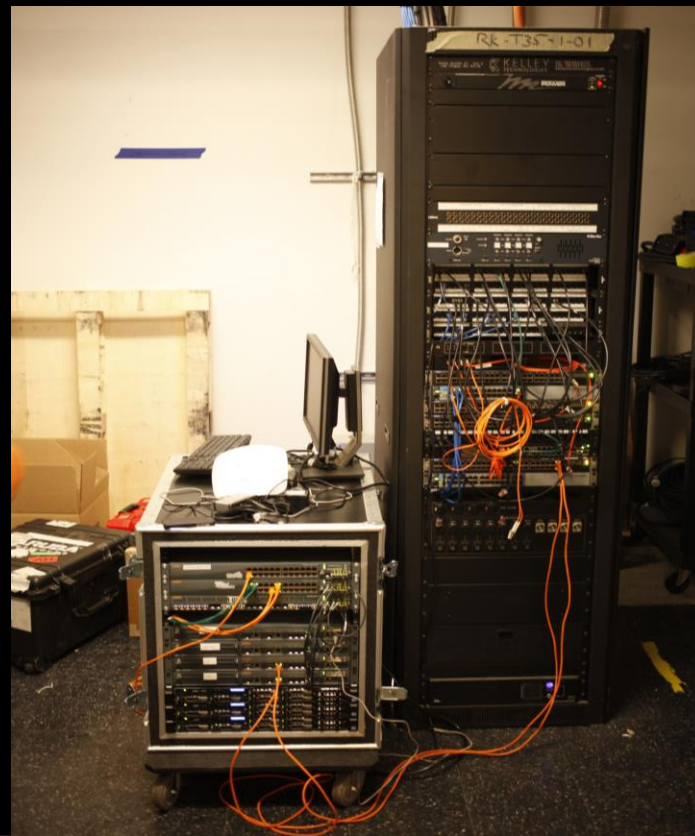
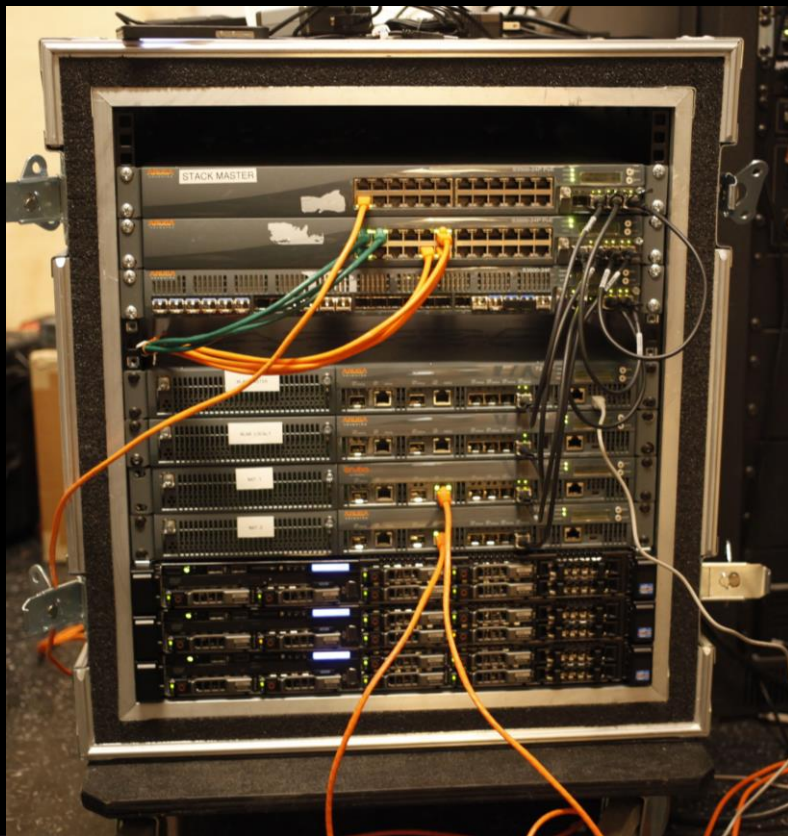
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# Network Layout

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## *Downsides*

- *Find a hotel that is running your stuff*
- *Integrate into the hotel's network*
- *Live with a bit less recent hardware*

## *Upsides*

- *No need to deploy AP's on stands*





## *Take-over of the Cosmopolitan Access Points*

- *20 x AP-105 and on the 2<sup>nd</sup> floor*
- *51 x AP-105 on the 3<sup>rd</sup> floor*
- *33 x AP-225 and on the 4<sup>th</sup> floor*
- *78 x AP-134 and AP-135 in Chelsea (Keynote room)*

# RF Plan



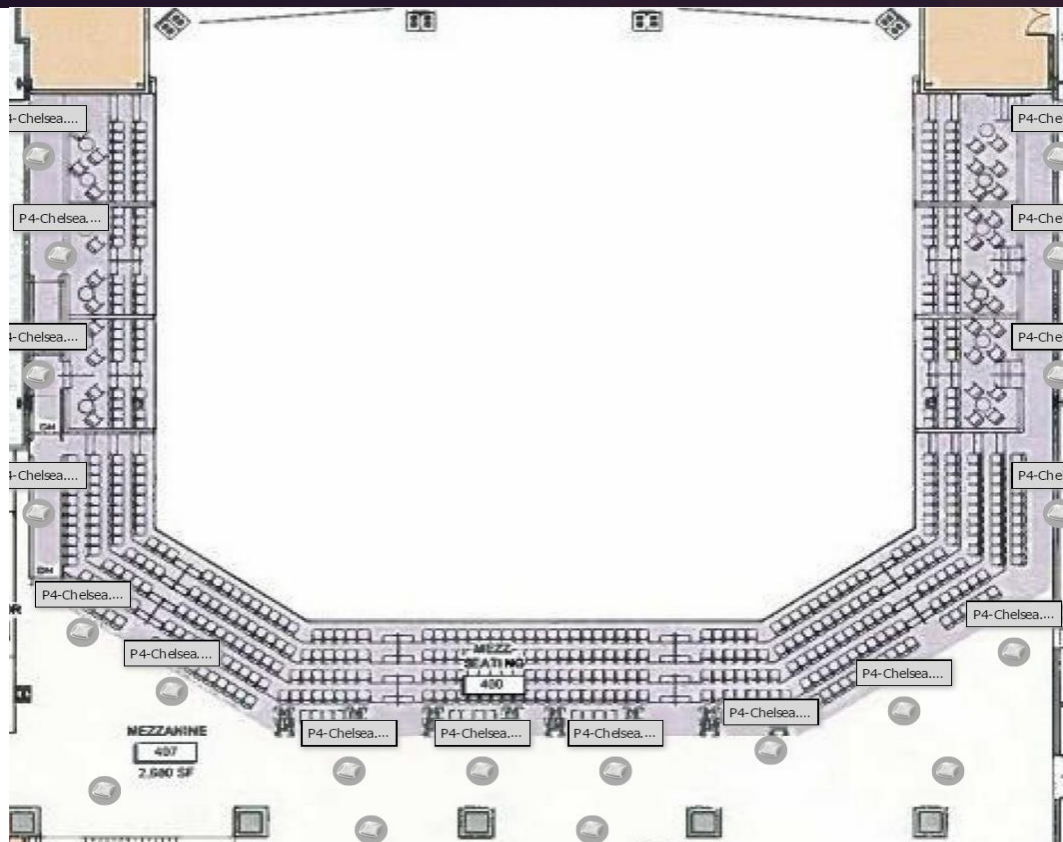








# RF Plan



# Chelsea – Top Floor

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# Configuration Overview

# Radio Profiles

```
rf dot11g-radio-profile VHD-Ch01  
channel 1  
tx-power 17  
arm-profile VHD-arm_disabled  
!
```

```
rf dot11g-radio-profile VHD-Ch04  
channel 4  
tx-power 12  
arm-profile VHD-arm_disabled  
!
```

```
rf dot11g-radio-profile VHD-Ch07  
channel 8  
tx-power 12  
arm-profile VHD-arm_disabled  
!
```

```
rf dot11g-radio-profile VHD-Ch11  
channel 11  
tx-power 12  
arm-profile VHD-arm_disabled  
!
```

Just Kidding

# Radio Profiles

```
rf dot11g-radio-profile VHD-Ch01
    very-high-throughput-rates-enable
    channel 1
    tx-power 9
    arm-profile VHD-arm_disabled
    disable-arm-wids-functions dynamic
    no dot11b-protection
!
```

```
rf dot11a-radio-profile VHD-Ch036
    channel 36
    tx-power 15
    arm-profile VHD-arm_disabled
    disable-arm-wids-functions dynamic
!

rf arm-profile VHD-arm-disabled
    assignment disable
    cm-band-g-max-signal 10
    cm-steer-timeout 3
    cm-lb-thresh 60
    cm-lb-client-thresh 80
!
```



# SSID Profiles

```
wlan ssid-profile Airheads-VHD
```

```
  a-basic-rates 24
```

```
  a-tx-rates 18 24 36 48 54
```

```
  g-basic-rates 11 24
```

```
  g-tx-rates 11 12 18 24 36 48 54
```

```
  max-retries 24
```

```
  max-clients 128
```

```
  local-probe-req-thresh 15
```

```
  mcast-rate-opt
```

```
  ht-ssid-profile "airheads-vegas"
```

```
  g-beacon-rate 24
```

```
  a-beacon-rate 24
```

!

```
wlan ssid-profile Airheads-HD
```

```
  a-basic-rates 12 24
```

```
  a-tx-rates 12 18 24 36 48 54
```

```
  g-basic-rates 11 12 18
```

```
  g-tx-rates 11 12 18 24 36 48 54
```

```
  max-retries 24
```

```
  max-clients 128
```

```
  local-probe-req-thresh 15
```

```
  mcast-rate-opt
```

```
  ht-ssid-profile "airheads-vegas"
```

```
  g-beacon-rate 12
```

```
  a-beacon-rate 12
```

!

# Configuration Overview

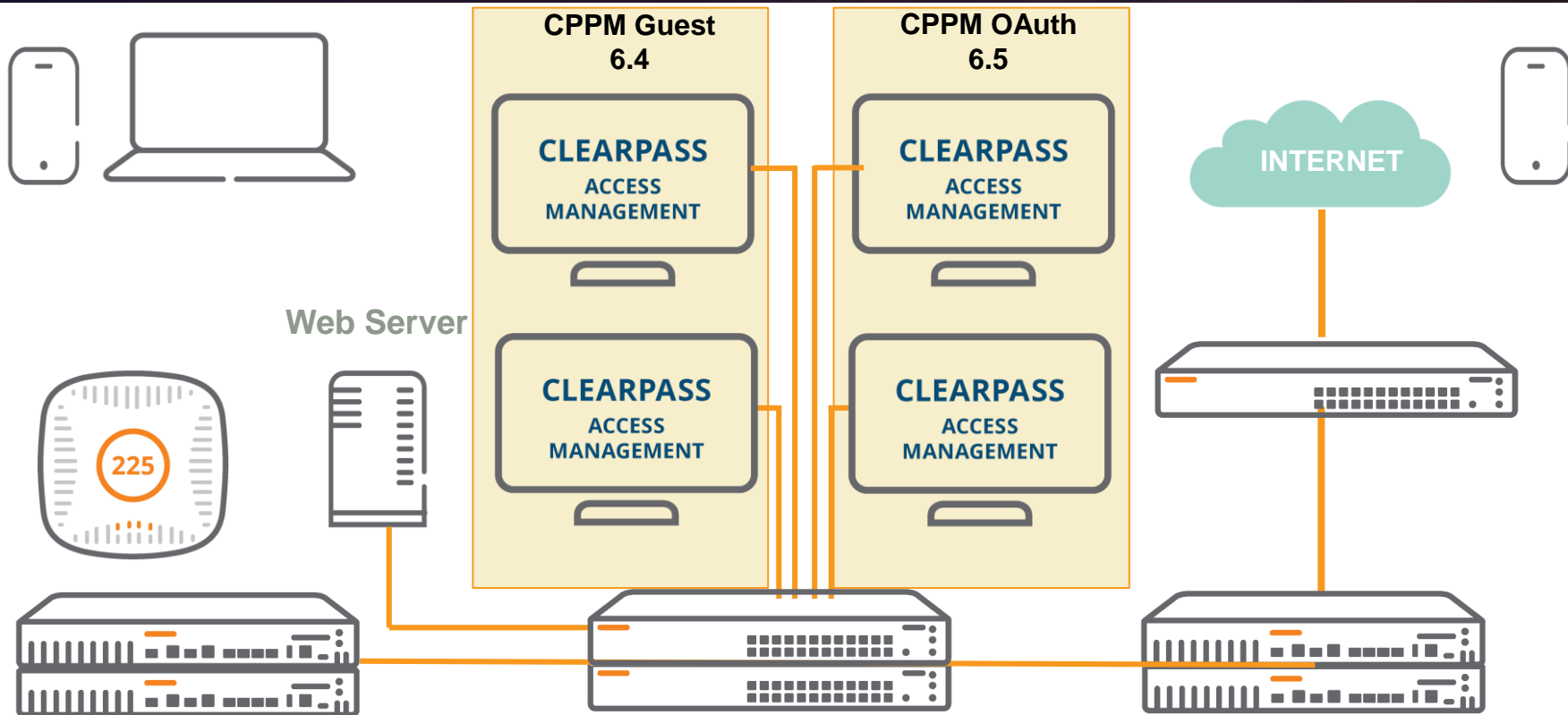
```
wlan virtual-ap Airheads-VHD
    aaa-profile Airheads-Vegas
    ssid-profile Airheads-VHD
    vlan user-vlan
    broadcast-filter all
    deny-inter-user-traffic
    no mobile-ip
    no blacklist
```

!

```
wlan ht-ssid-profile airheads-vegas
    no 80MHz-enable
    temporal-diversity
    supported-mcs-set 1-7,9-15,17-23
```

!

# ClearPass Design



Administration

- Start Here
- AirGroup Services
- API Services
  - Start Here
  - API Clients
  - SOAP Web Services
- Data Retention
- Import Configuration
- Operator Logins
  - Start Here
  - Login Configuration
  - Profiles
  - Servers
  - Translation Rules
- Plugin Manager
- Support

Use this form to edit the API client "meridian".

Edit API Client

* Client ID:	meridian <small>The unique string identifying this API client. Use this value in the OAuth2 "client_id" parameter.</small>
Description:	<div></div> <small>Use this field to store comments or notes about this API client.</small>
Enabled:	<input checked="" type="checkbox"/> Enable API client
* Operator Profile:	Super Administrator <small>The operator profile applies role-based access control to authorized OAuth2 clients. This determines what API objects and methods are available for use.</small>
* Grant Type:	Username and password credentials (grant_type=password) <small>Only the selected authentication method will be permitted for use with this client ID.</small>
Public Client:	<input checked="" type="checkbox"/> This client is a public (trusted) client <small>Public clients have no client secret.</small>
Refresh Token:	<input checked="" type="checkbox"/> Allow the use of refresh tokens for this client <small>An OAuth2 refresh token may be used to obtain an updated access token. Use grant_type=refresh_token for this.</small>
Access Token Lifetime:	14 days <small>Specify the lifetime of an OAuth2 access token.</small>
Refresh Token Lifetime:	14 days <small>Specify the lifetime of an OAuth2 refresh token.</small>

Save Changes

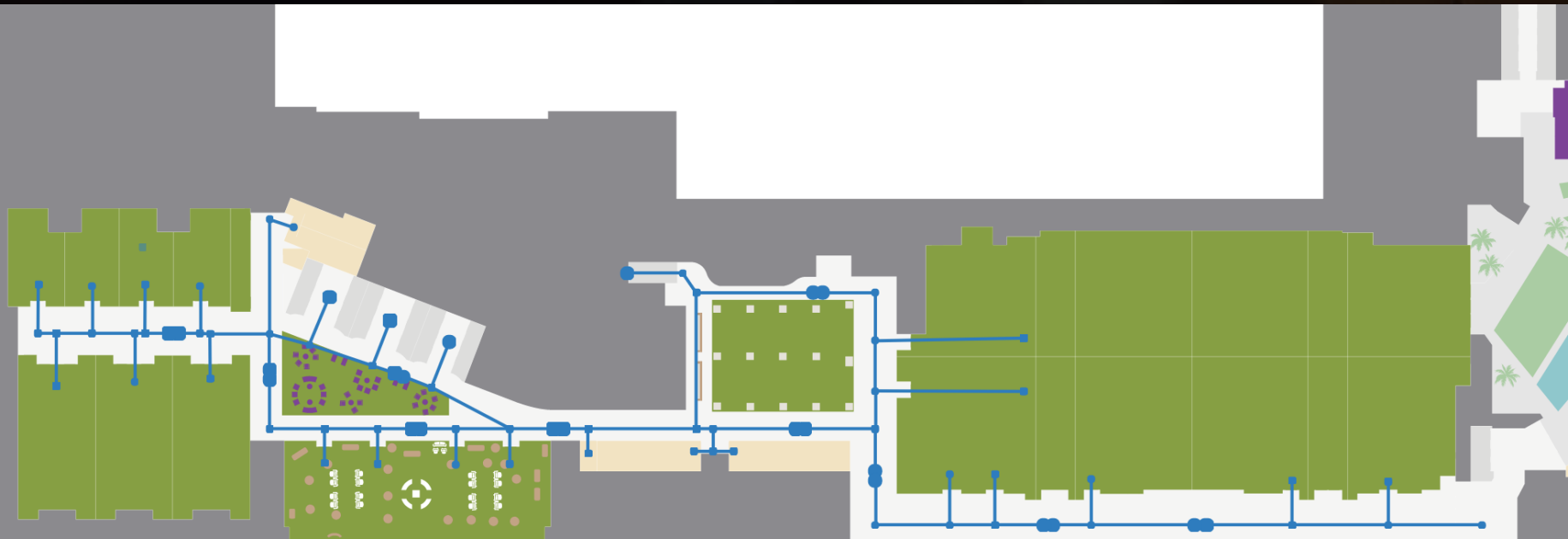
Cancel

## Authentication Sources - AH2015-SQL

Summary	General	Primary	Attributes
<b>General:</b>			
Name:	AH2015-SQL		
Description:	AH2015-SQL - CPPM-VIP		
Type:	Sql		
Use for Authorization:	Enabled		
Authorization Sources:	-		
<b>Primary:</b>			
Server Name:	[REDACTED]		
Port (Optional):	-		
Database Name:	tipsdb		
Login Username:	appexternal		
Login Password:	*****		
Timeout:	10		
ODBC Driver:	PostgreSQL		
Password Type:	Cleartext		
<b>Attributes:</b>			
Filters :	<pre> 1. SELECT user_credential(password) AS User_Password, CASE WHEN enabled = FALSE THEN 225 WHEN ((start_time &gt; now()) OR ((expire_time is not null) AND (expire_time &lt;= now()))) THEN 226 WHEN approval_status != 'Approved' THEN 227 ELSE 0 END AS Account_Status, sponsor_name, CASE WHEN expire_time &gt; now() THEN CAST(EXTRACT(epoch FROM (expire_time - NOW()))) AS INTEGER) ELSE 0 END AS remaining_expiration, expire_time::timestamp, (SELECT tag_value FROM tips_guest_user_tag_mappings u JOIN tips_tag_values v ON (u.tag_value_id = v.id) WHERE u.instance_id = tips_guest_users.id AND v.tag_id = (SELECT id FROM tips_tag_definitions WHERE name = 'Visitor Name' AND entity_id = (SELECT id FROM tips_dic_internal WHERE dic_prefix = 'GuestUser')))) AS visitor_name, (SELECT tag_value FROM tips_guest_user_tag_mappings u JOIN tips_tag_values v ON (u.tag_value_id = v.id) WHERE u.instance_id = tips_guest_users.id AND v.tag_id = (SELECT id FROM tips_tag_definitions WHERE name = 'visitor_title' AND entity_id = (SELECT id FROM tips_dic_internal WHERE dic_prefix = 'GuestUser')))) AS visitor_title FROM tips_guest_users WHERE (guest_type = 'USER') AND (user_id = '%{Authentication:Username}') AND (app_name != 'Onboard'); </pre>		







☒ Campaign Active

---

ID  
5717424225648640

TITLE  
Digital Sign ENTER

ACTION  
Notify a custom end-point

TARGET URL  
http://oauth.arubanetworks-events.com/MeridianBooth/Visi

Test

BROADCAST TYPE  
Always

☒ Campaign Active

---

ID  
5693607356923904

TITLE  
Airheads Contest

ACTION  
Send device a message

MESSAGE  
Selfie contest with @srynearson #ATM15Selfie

LINK  
Search Placemarks, Pages, Events

BROADCAST TYPE  
Always

```
wlan ssid-profile Airheads-VHD
```

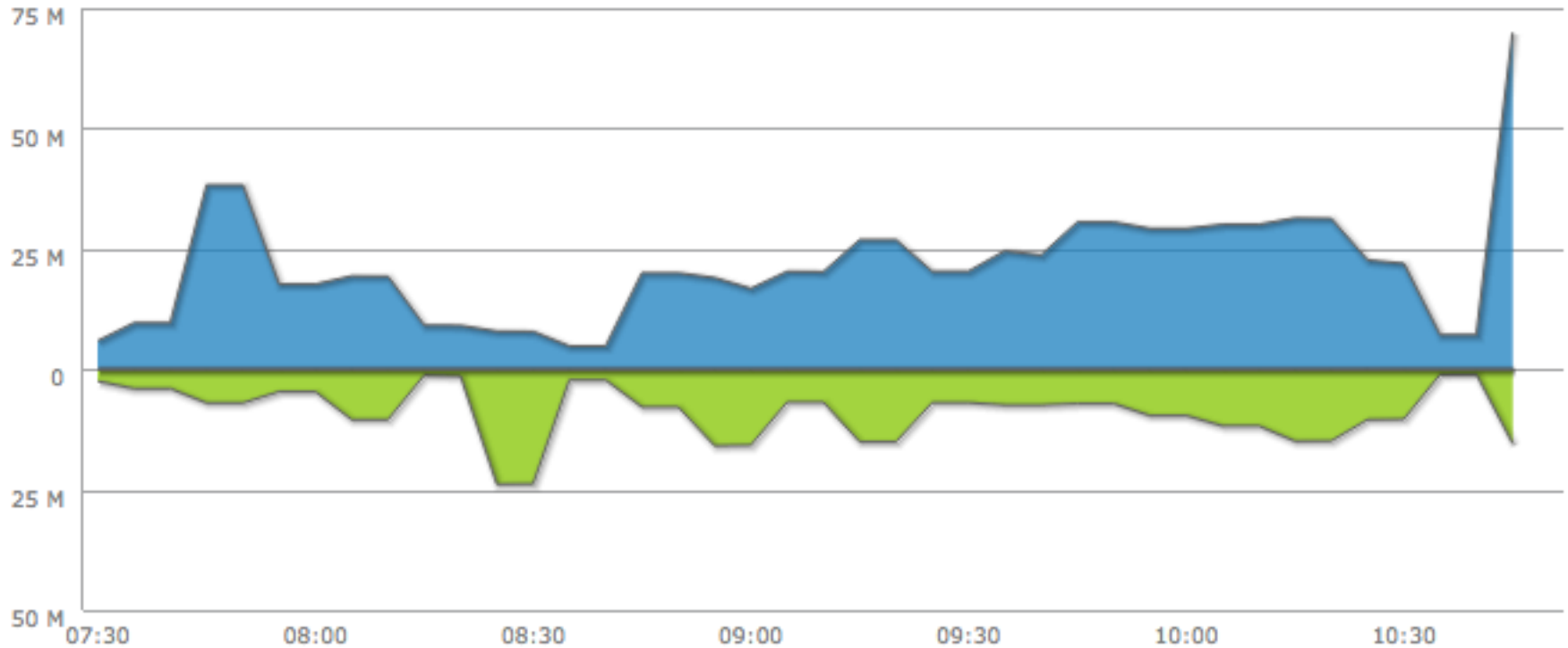
```
settings..
```

```
settings..
```

# Statistics

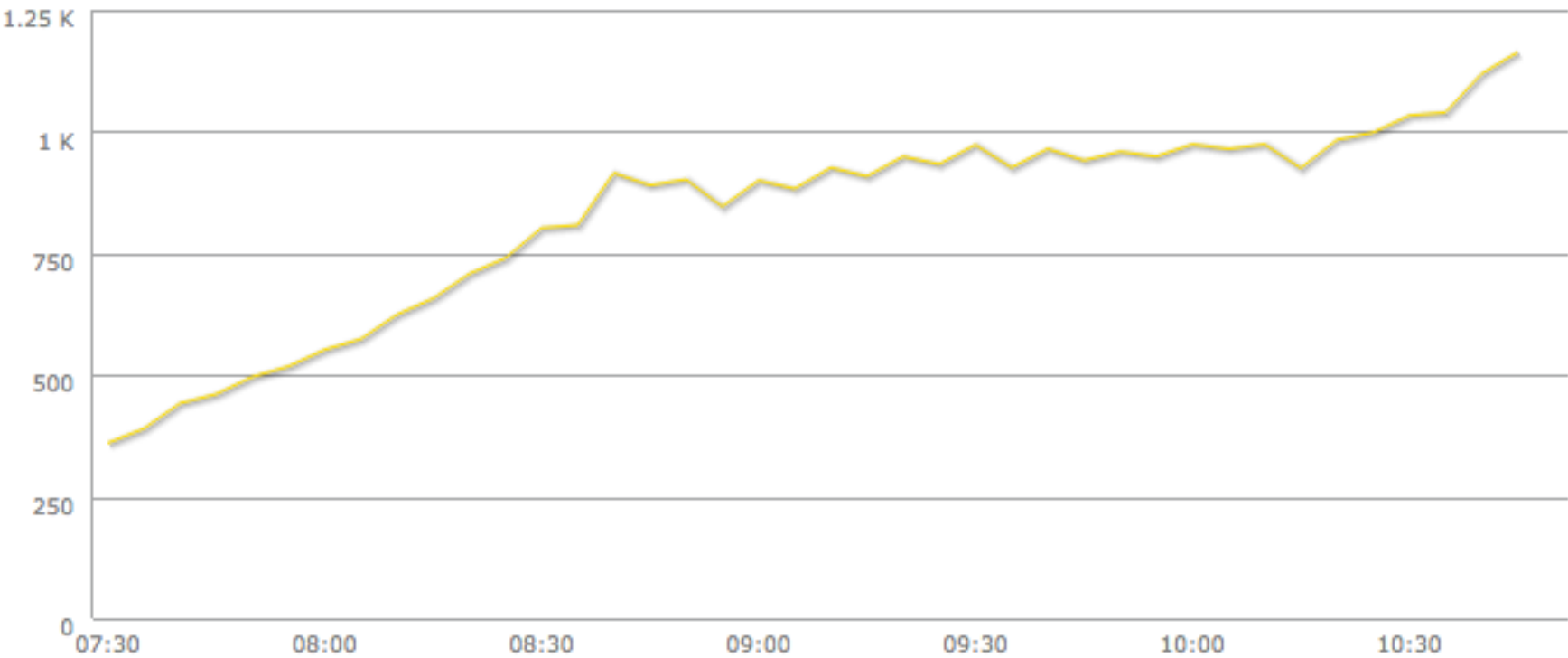
# Download (blue) and Upload (green) rates

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# Client Count



# ClientMatch 802.11v BSS Transition

- *Out of 1301 unique clients, we have 568 802.11v capable devices (134 Android, 434 iOS)*
- *Sent 8891 move messages*
- *We had 1339 successful moves*

# Channel split

2.4 Ghz	
Devices	Frequency
4	1
17	1
8	1
21	6
18	6
4	11
29	11
5	11
106	TOTAL

U-NII-1	
Devices	Frequency
31	36
30	36
17	40
35	44
50	44
48	48
32	48
243	TOTAL

U-NII-2/2e	
Devices	Frequency
44	52
16	52
18	56
50	64
34	100
35	104
58	108
255	TOTAL

U-NII-3	
Devices	Frequency
15	149
10	153
22	157
2	157
37	157
26	165
15	165
127	TOTAL

# Lessons Learned

- *Need proper IP space for session capacity*
- *DNS servers can be a problem*
- *These networks always take more time to build than expected*

# Try not to go crazy

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A nighttime photograph of the Las Vegas skyline, featuring numerous brightly lit skyscrapers and hotels against a dark sky. The city lights reflect on the ground. Two thin, intersecting lines, one white and one orange, cross the upper half of the image. The text 'THANK YOU' is centered in the upper right area.

# THANK YOU

# ... Before You Go

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## Give feedback!



## Sign up, save \$200!



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