



Members Meeting

September 12th, 2016

Agenda

- Introductions
- 2016 review
- Social activities - hackathons, 10yr BBQ
- Architecture
- Financial update
- Future opportunities

Introductions

- Board members
 - jof, Justin, Leslie, Matt, Tim
- Participants

Thanks Weebly for today's venue!



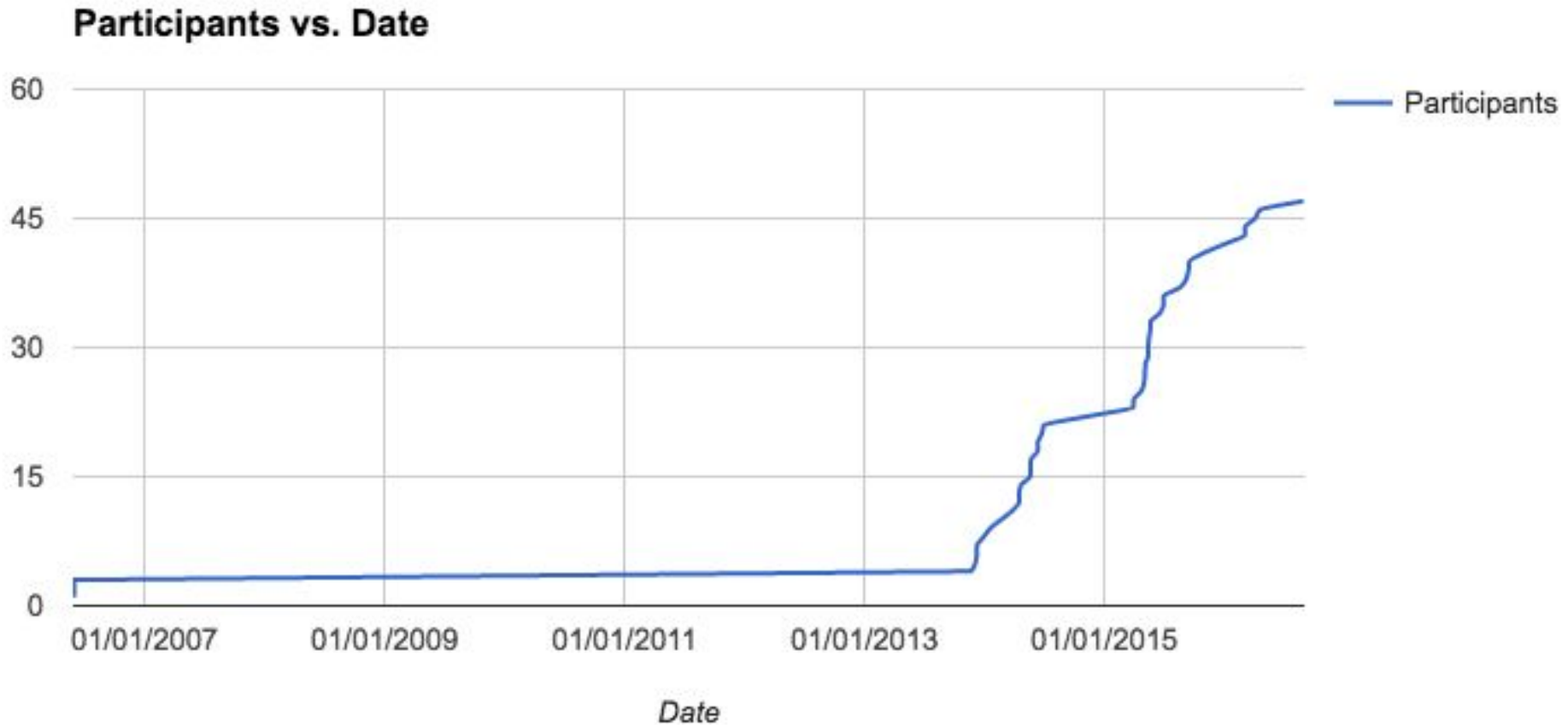
2016 review

- Added new participants:
 - *Google*
 - *CNE Media* (media streaming)
 - *Race Communications* (FTTH provider)
 - *IX Reach* (L2 international transport)
 - *Limelight* (CDN)
 - *Altiora*
 - *DNS-OARC* (non-profit DNS industry org)
 - *Outofwall* (VPN provider)

2016 review

- Departing participants:
 - *Convergens (acquired by Race)*
 - *Monkey Inferno (leaving 365 Main)*
 - *Planisys*
 - *ValueHost*
 - *RAAPID*
 - *Goruck*
 - *Sendloop*

SFMIX Peering Participants



2016 review

- Achieved exempt status with IRS! (2yr process)
 - 501(c)12... first known IX in America
 - *“mutual or cooperative telephone companies”*
- ✓ 85% revenue from members
- ✓ Democratic operation
- ✓ Operation at cost

Thank you: [Plumas-Sierra Telecommunications](#) (CA), [Cambridge Bandwidth Consortium](#) (MA), SeattleIX, NWAX, TorIX, LoNAP... *fruitful advice*

Hackathons

- Average of 9 participants
- Happens every few months
- Work includes:
 - Writing code (Ansible, Python, etc)
 - Onboarding volunteers
 - Administrative
 - Debugging
 - Upgrades
 - Planning



Hackathons

- Many services driven by [Ansible](#) (route server, switch configs, web site, etc.)
- Goal to deprecate YAML to SQL backend
- Very beginning early stages of portal development
- *Really could use more volunteers here, most of us are network / systems engineers - not programmers*

Hackathons

- Participants (*outside of the board*)
 - Bronwyn Lewis, Rob Liesenfeld, Tristan Horn, Kayla Smith, Joe Gross, Ryan Anderson, Peter Phaal, Codey Oxley, Donal Oduibhir, Ashwin Jacob Mathew .. **Thank You!**



BBQ (10yrs of peering!)



- Participants
 - Two P, Hurricane Electric, HyperDSL, Altiora, Weebly, Paxio, Packet Clearing House, Telx
- Supporters
 - InMon (sFlow), City of SF, Cumulus Networks

Architecture

Active POP's

- SFO01 (est. 2006)
- SFO02 (11/2013)
- FMT01 (04/2015)

Dormant POP's

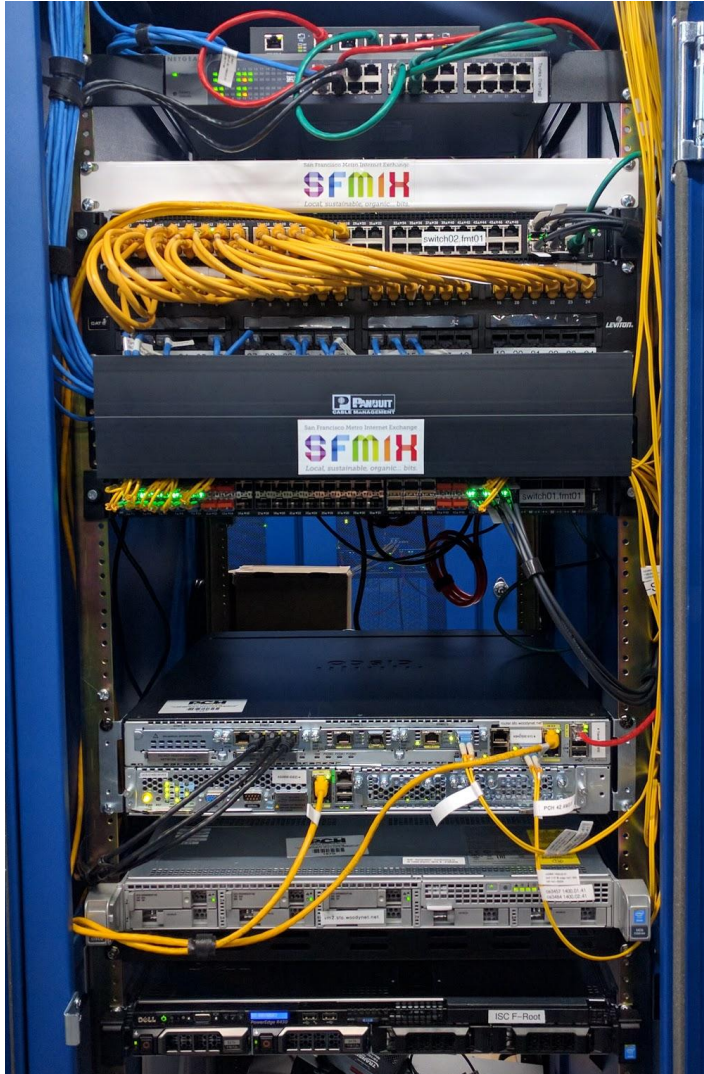
- SCL01 (Vantage - 2820 Northwestern)
- SJC01 (365 Datacenters - 534 Stockton)

Live over 1.5 years, never attracted any participants

Switching

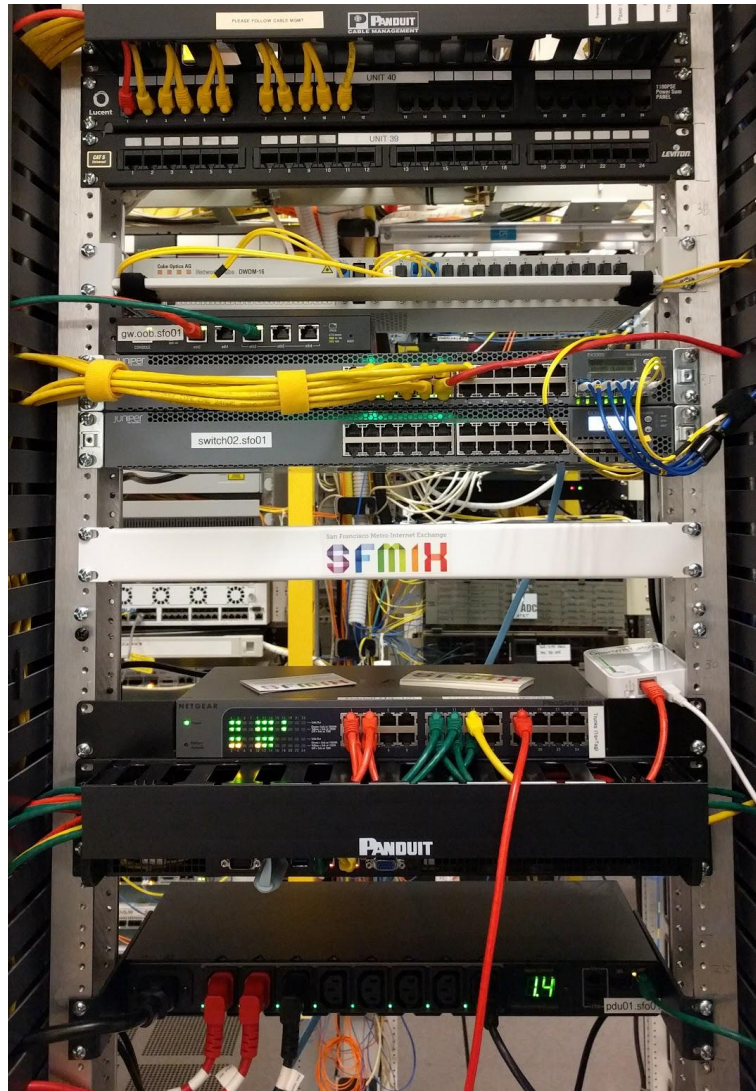
- 75% of switches Cumulus Linux
- Would like to converge on 100% Cumulus, likely Dell -ON platforms
- Slowly migrating from cheap no-name optics to flexOptix
 - 2 participants using BiDi 10G optics for cross-x (pricing) efficiency
- Would like to depreciate copper by mid 2017
 - lots of troubleshooting, bad cross-x wiring, distance issues

“FMT01” – 48233 Warm Springs Blvd.



- ← Ubnt EdgeRouter - out of band GW
- ← Transit / OOB switch (Netgear)
- ← switch02.fmt01 (Dell S3048-ON)
- ← Pre-wired cross-x patching
- ← switch01.fmt01 (Dell S4048-ON)
- ← Packet Clearing House (router)
- ← Packet Clearing House (DNS cache)
- ← ISC F-root “in a box” (DNS cache)

“SFO01” – 365 Main



- ← Pre-wired cross-x patching
- ← Ubnt EdgeRouter - out of band GW
- ← Juniper EX3300-24T
- ← cold spare Juniper EX3300-24T
- ← Transit / OOB switch (Netgear)
- ← Proxmox VM host (looking glass, 2nd route server)
- ← ServerTech managed PDU

“SFO02” – 200 Paul



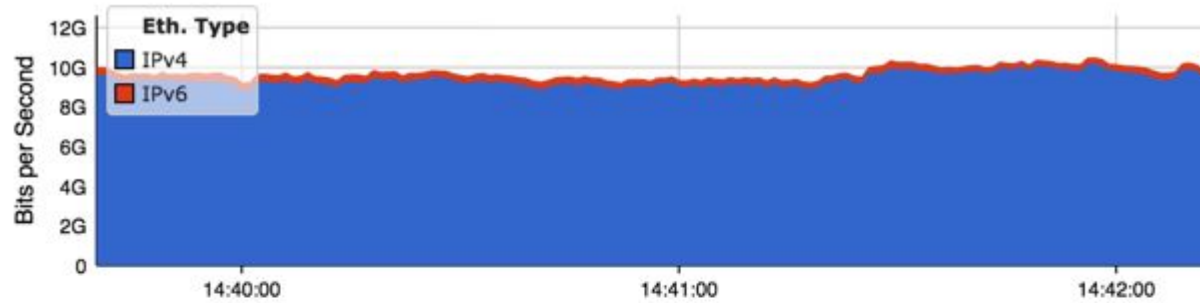
← Cumulus 48x10GE 4x40GE switch
(A & B power fed)

← cold spare Cumulus switch

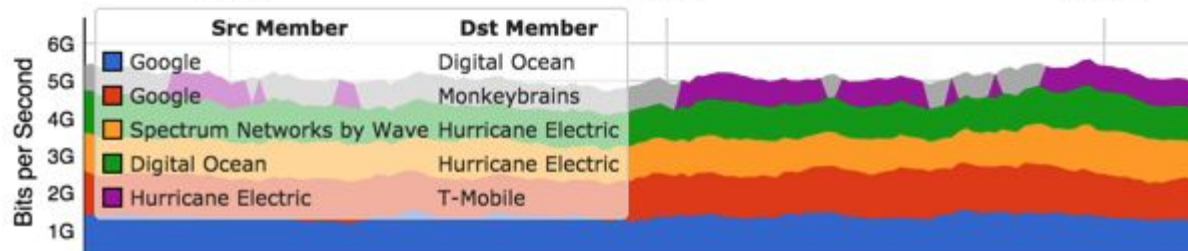
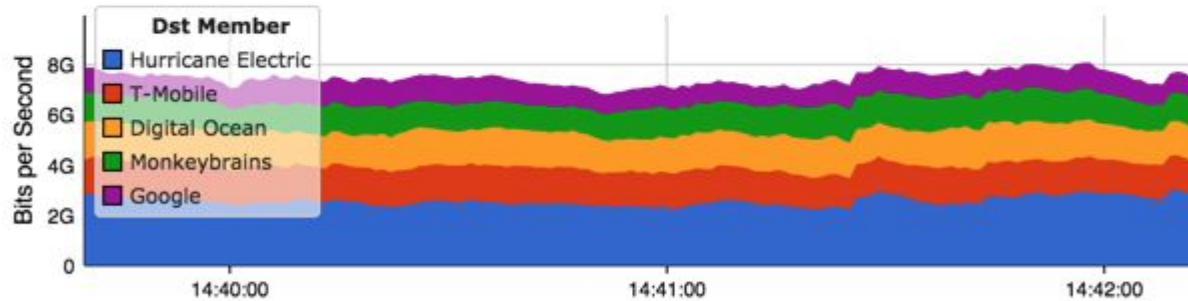
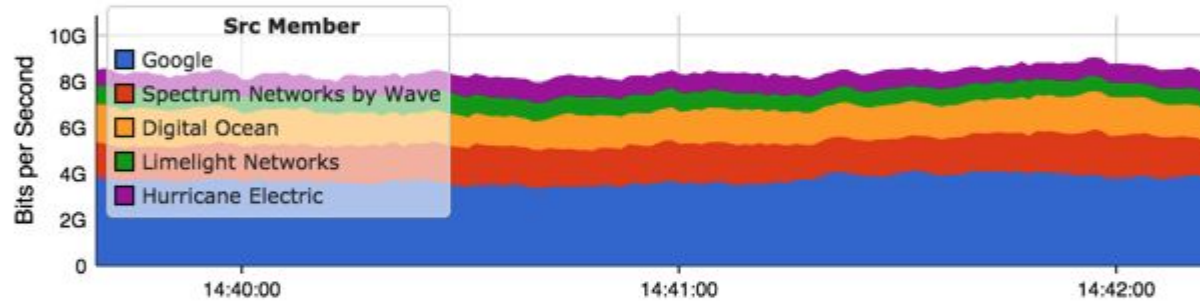
Monitoring

- Yes, public stats have been down
 - Still capturing the data
 - Deprecating Cacti for LibreNMS & Grafana
- As of March '16, all switches produce sFlow
- Experimenting with optical data (`ethtool -m`) presented over sFlow

Protocols



Members



San Francisco Metro Internet Exchange



SF02



L6



SF01

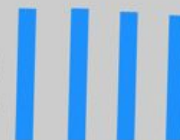
L0

L1

FMT02



L2



L5



Route Servers

- Stats (collected mid August)
 - V4: 72% of participants (of 51 possible ASNs)
 - V6: 49%
- Implementation
 - 1st route server - BIRD/FreeBSD
 - 2nd (new) route server - OpenBGPD

Likely to renumber to .253 & .254 v4 IPs'
IPv6 remains the same

DNS servers (gTLD/ccTLD)

- PCH (D, E root), ISC (F), Verisign (J)
- PCH upgraded server due to IX traffic profile
- Trial'ing ISC "F root in box" (AS27321)
- DNS-OARC plans to advertise AS112
- In discussion with WIDE (M root), physically in 200 Paul (3 entities involved to coordinate / justify cross-x's)

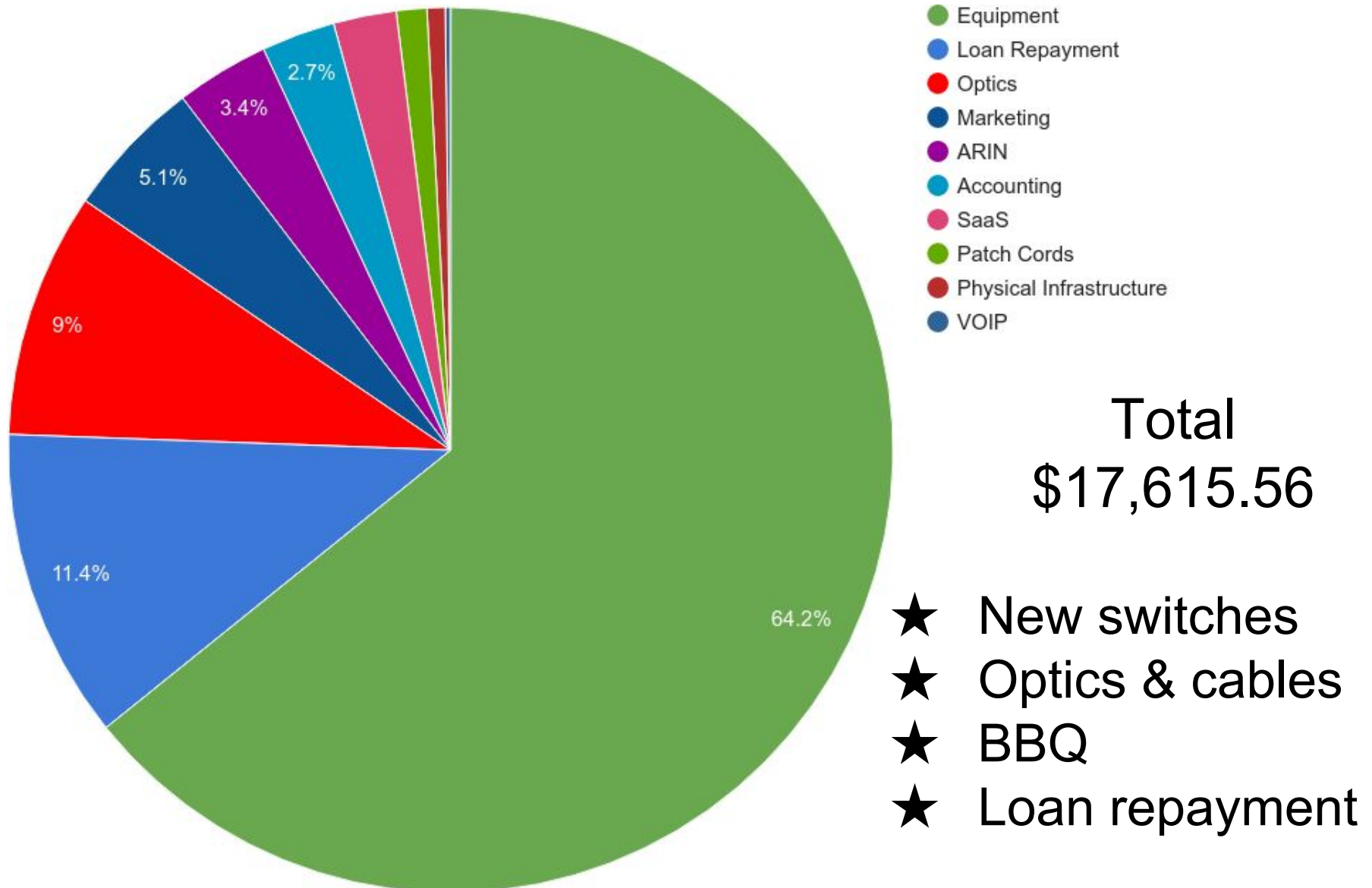
Financial

- Start charging in mid 2015
 - End of bank of Matt & Tim era (\$20k over 9 year period)
 - Unavoidable costs adding up: optics, cross-x's, power circuits, switches, etc.
- Stay true to our mission
 - regional, affordable, focused
 - \$995/yr =<1G, \$1995/yr more than >1G
 - registered non-profit's may request comp
 - “trade value” board considered (such as dark fiber)
-

Financial

- January 01, 2016 balance: \$10,686.92
- Outstanding debt: \$18,602.64
 - Pay back start-up loan
- Current balance as of today: \$11,656.29
- Budget published Nov, 2015
 - Target of \$10k/yr operational costs
*(impressive for 3+ sites with 50+ cross-x's,
see industry [IXP pricing comparison](#))*

2016 YTD Expenditures



Expenditures Summary

- \$11,311.44 on Equipment assets
 - Mostly switch upgrades. Consistent Cumulus x86 platform.
 - First purchased mux. Saves on extortionate x-connect fees.
- \$1,578 on Optics
 - FlexOptix has been wonderful. Supports Muxes and growth.
- Mugs and BBQ were minor (\$774.07)
- ARIN, SaaS (Google Apps, JIRA, 1Password)
- \$70 in bank wire fees. Checks help.

Membership payment status

- 15 paid members
 - Weebly, HE.net, Monkeybrains, T-Mobile, Yelp, FastMetrics, TwoP, Digital Ocean, Race Telecommunications, CNE Media, IX Reach, Tekify, Out of Wall, DNS OARC, Ether Web
- 3 non-profit (PCH, ISC, RouteViews)

Membership payment status

- 24 awaiting payment (*in progress*)
 - Wave, Yahoo!, Cloudflare, Google, Lookout, RocketSpace, Limelight, ReliableHosting, SkyScape Networks, UnitedLayer, Layer42, Verisign, Turtle Systems, Paxio, Trijit Corp., HyperDSL, SONN/NoAccess, Emnify, Fire2Wire, LTY LLC, Softcom, Altora, Unwired

2016 planned activities

- Monitoring
 - Improve public and private visuals
- Deprecate Juniper and PowerPC switches
 - SFO01 (365 Main)
 - SFO02 (200 Paul)
- Route Servers
 - Get 2nd RS online, monitored, sessions up
 - 1st RS switch to Ubuntu, newer BIRD build

Discussion

- Redundancy
 - Dual power (true only at 200 Paul), dual fiber/transport paths, etc?
- Deprecate POP's?
 - Vantage (Santa Clara)
 - 365 Datacenters (San Jose)
- Expansion
 - 11 Great Oaks (Equinix) .. minimal cost
 - 55 S Market (Coresite) .. \$5k/yr in power