

# Views From The Other Side:

*Confessions of a Guilty Customer*

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# Why do I think I'm here?

- I have no idea. I'm honored though!
- In theory, I've been beaten up by customers for years, so now I get to do the beating
- I want to be verbally abused by Randy Bush
- Because Ren Provo batted her eyelashes
- Because Merit knows I can't sell you anything

# Why I shouldn't be here

- I cannot solve the 100 GigE availability problem
- I have not had enable since 1995
- My idea of a “local loop” is a leased 3002 line hardwired for 9600bps
- I went to film school to avoid discrete math
- This is not going to be a technical presentation. Too bad. Drink your coffee.

# Battle Scars

- Netcom, 1994-1997
- Digital Equipment Corp, PAIX, 1997-1998
- Equinix, 1998-2005

# Netcom: The Dawn of The Irate IP Customer



# Netcom: The Dawn of The Irate IP Customer

- Started as an Installation Coordinator, installing T1s, DS3s, dialups, etc.
- Spent the lion share of time managing the NOC
- Yes, I know, Ralph Pearson did a better job than I did so stop reminding me
- NOC people developed quite an attitude...

# Netmaster 10Base-T

(Edited Excerpts from a Netcom NOC Engineer)



Yo bitch! Dis is Netmaster 10baseT pingin' yo sorry ass, and I want y'all to know that I'm on the muthaf@\$#in case.

Word!

[boom chicka wap wap widget widget widget]

I be jackin'.

I be crimpin'.

I be tracin'.

I be pingin'

I be routin' yo packets like a Cisco;  
I'm gonna grease yo cables with Crisco.

[boom boom wap chicka widget widget widget]

# Netmaster 10Base-T

(Edited Excerpts from a Netcom NOC Engineer)



While all the other admins' on a picnic...  
I'm on the case; I'm bustin' on Mitnick.  
Your friends on trex all usin' PGP?  
I'll f#\$@n' read it in hex; that ain't sh!t to me.  
Cuz I'm what the muthaf#\$@s call connected.  
Your packet comes to me... it gets rejected.  
I can see you through the fiber, got yo mouse in yo hand with  
the muthaf#\$@%n' spam that's consumin' my bandwidth.

[waka waka widget wap widget chicka widget]

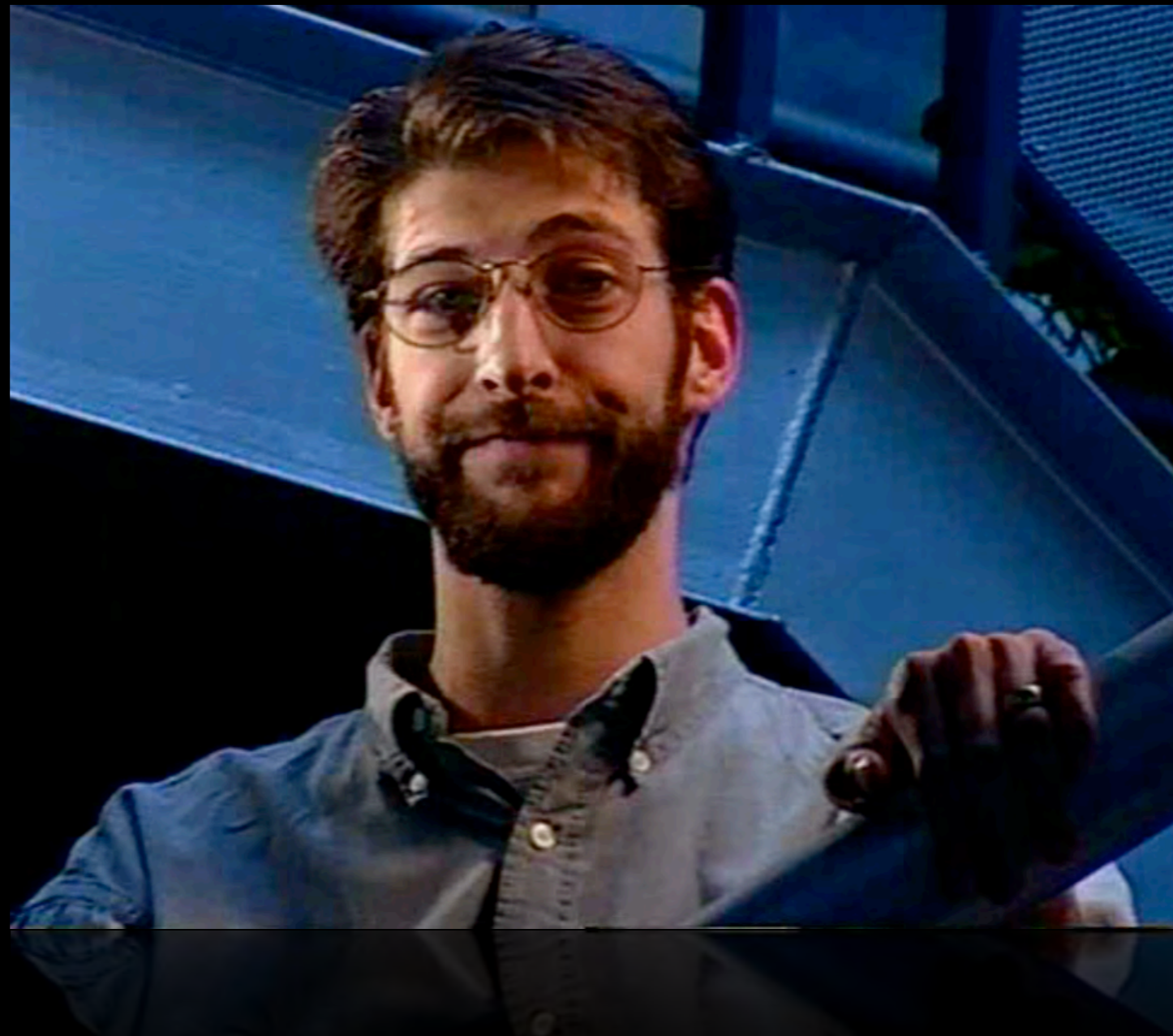
For the unedited version, go to <http://www.mola.org/mola/10baset.html>



# Typical Questions and Complaints in 1994

- The Internet is broken
- I bought a T1. Why aren't my transfers 1.5Mbps?
- I ordered my service last week. Where is it?
- I can't telnet into my credit card database
- AppleTalk doesn't work well tunneled over my Internet links

# PAIX: Irate ISPs Are Worse



# PAIX: Irate ISPs Are Worse

- As you can see, I had to fit in with the research guys at DEC's NSL so I grew a beard
- Dealt with customers so Paul Vixie and Stephen Stuart didn't have to
- Developed the now-hated cross connect naming conventions (sorry! What's a GNI again?)
- Got carried out of my first NANOG party in June, 1997 in Tampa. Now I know why you party so hard.
- Learned what it was like to provide services on flawed equipment and let Stephen take the blame

# Typical Questions and Complaints in 1997

- The Internet is broken
- I bought an OC-3. Why aren't my transfers 155Mbps?
- I ordered my service last week. Where is it?
- You broke my \$180k Cisco with metal shavings from rapid cage installations
- I don't see why I should be banned from the facility for taking naked photos in my rack

# Equinix: Built By Geeks For Geeks

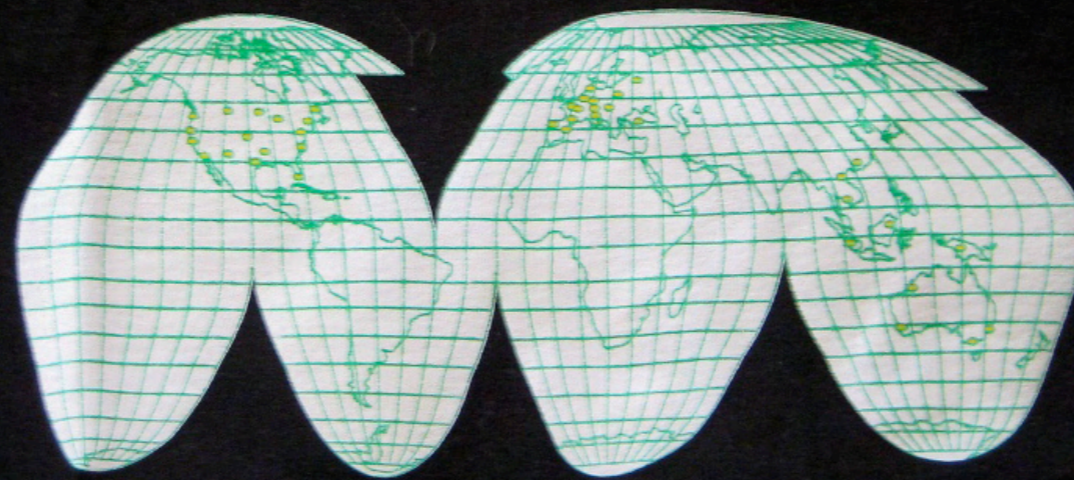


# Equinix: Built By Geeks For Geeks

- Founded in 1998 to follow up on concepts DEC wasn't interested in doing
- One goal was to prevent irate customers from yelling at me by bridging the gap
- Designed datacenters, engineering, R&D
- Experiment to see if an IXP built by NANOGers would reduce service pains

# Equinix: Built By Geeks For Geeks

**IP CLUEFUL**



# Equinix: Built By Geeks For Geeks

- Bill Norton, our evangelist, writes whitepapers to assist customers
- Focus early on R&D, trying to solve core problems at extreme speed
- Products focused on solving macro-level, industry-wide issues
- Raised \$980 million dollars to do it
- With any big company, however, growth meant more customers outside of the “clueful” audience



# Typical Questions and Complaints in 2000

- The Internet is broken
- I bought an OC-192. Why can't I get peering?
- I ordered my service last week. Where is it?
- My company just went bankrupt and my boss is in jail. Can I get in my cage?
- I like you, but your technicians tried to smash an RJ-45 into my optical port

# Escape Velocity

- Post 9/11 government education, travel, public company blues...
- While Equinix was a success, never met goal of avoiding being yelled at
- Watched friends around me disappear in the post-dot com bust
- Three kids, travel hurting the family, dogs and cats living together...

# Escape Velocity



# Escape Velocity

- Summer, 2003, decision to leave corporate america and high tech and never return
- Summer, 2004, move to rural New York
- October, 2005, resigned from Equinix at LA NANOG to pursue the non-corporate life
- **Epic Fail:** Friendship with Kevin Rose and passion for democratization, abandoned plans and returned to entrepreneurship



# Digg

The screenshot shows the Digg website interface. At the top, there's a navigation bar with the Digg logo, user profile links, and a search bar. Below that is a category menu with 'Technology' selected. The main content area displays a list of articles under the 'Technology' category, sorted by 'Most Recent'. Each article includes a digg count, title, source, and a brief description. The sidebar on the right contains an advertisement for 'shareBUILDER' with the headline 'Buy stocks for \$4' and a list of features. Below the ad is another advertisement for 'ING DIRECT'. At the bottom of the sidebar is a 'Top in Technology' section listing popular articles.

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**427** diggs **YouTube: Viacom challenge threatens Internet freedom**  
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This block shows a dark, semi-transparent reflection of the content from the main screenshot above, mirroring the layout and text of the Digg website page.

# Revision3

Revision3 - The TV Network for the Internet Generation

http://revision3.com/

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Web Drifter	XLR8R TV


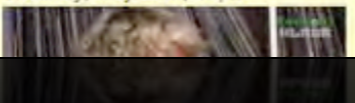
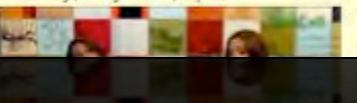

**Not sure what to watch?**  
Watch our live video feed and **chat** with other Revision3 viewers right now!



### Just Released

see more

#### WEEKLY EPISODES

Tuesday, May 27th, 3pm	Tuesday, May 27th, 12pm	Monday, May 26th, 3pm	Monday, May 26th, 12pm	Saturday, May 24th, 12pm
				

#### WEEKLY EPISODES

# Building Operations For A Services Company



“Your questions have become more redundant and annoying than the last three Highlander movies.”



# Building Operations For A Services Company

- He's smart, knows what he's talking about
- Might have some social skills issues, but so do we all
- He is always right, the customer is always wrong
- Very used to be yelled at by authoritarian, annoying customers

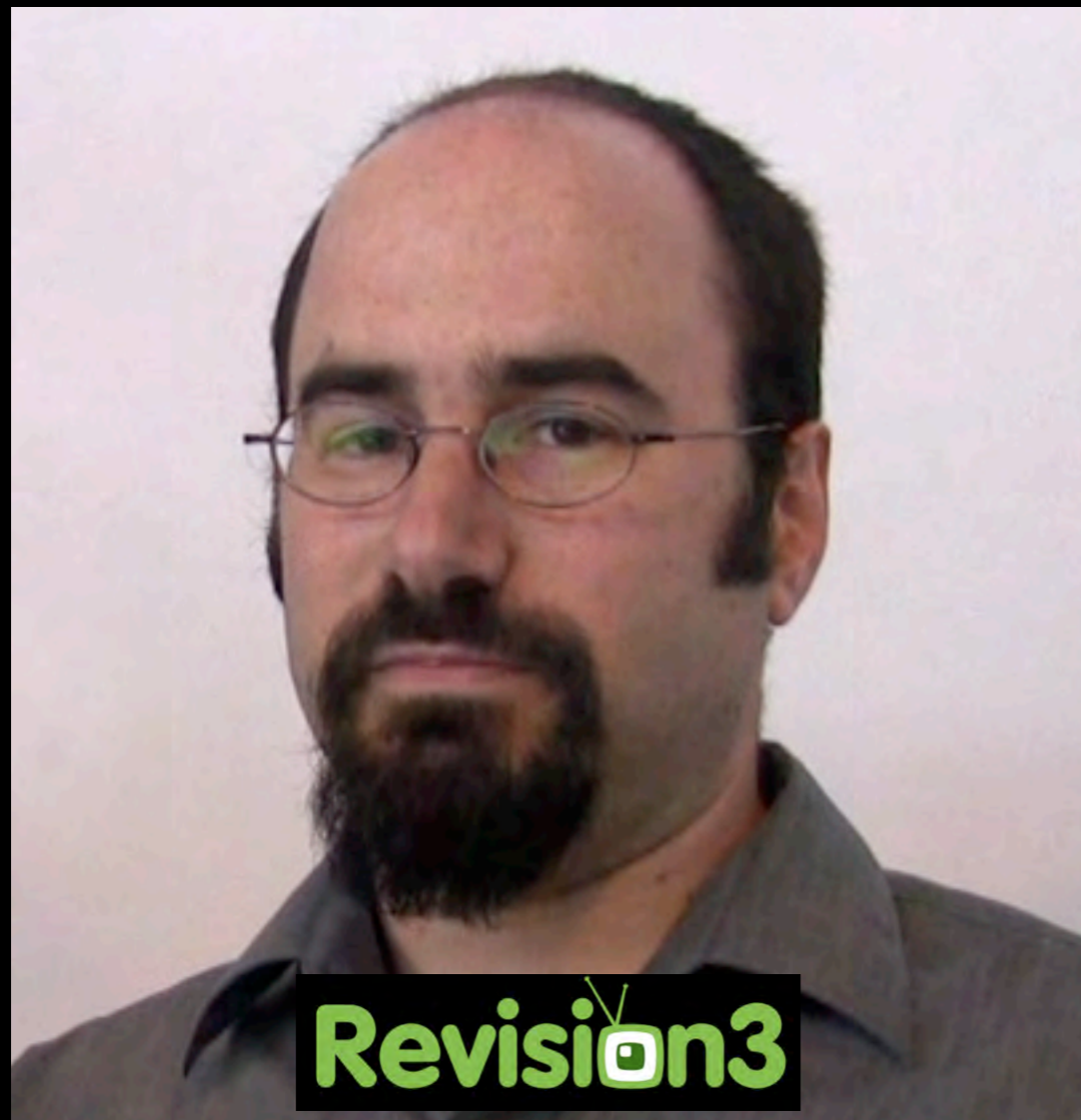
# Building Operations For The Customer Side

- Find people who are good at yelling at service providers in an authoritarian, annoying way
- Must steal people who used to be on the other side, so they can outmaneuver sneaky service providers
- Hire people who will do *anything* to ensure 100% availability
- Find operations management who are both *brilliant* and *ruthless*

# Building Operations For The Customer Side



# Building Operations For The Customer Side



# From The Inside: Are Customers Really Like This?

- For years, I had the perspective of a service provider
- Were customers doing this stuff just to annoy us?
- Are customers really that sinister?
- I took a video crew into both Digg and Revision3's offices, to spy on their operations groups
- Many network engineers died to bring you this video

# From The Inside: Are Customers Really Like This?

[ Play Video Here ]

# Customer Reality: Peering Humility

- Ten years of preaching “everyone should peer”
- Build the 30th most popular website in the U.S.
- Build 230mm page views a month
- Build 27mm unique visitors a month
- Build a national backbone... Two IXPs...
- Go to my VP of Ops: “Ok, ready to peer?”
- We’re only doing 200Mbps! (open mouth, insert crow)

# Customer Reality: Peering Humility

- If I pay \$10/meg, my costs are roughly \$2k a month
- If a peering port at the right size were to cost \$1k, I would need to peer off 100Mbps
- I know from experience...Content peering from two locations, 50% peering is a tall order
- Considering options: Pr0n fileshare?
- Still... I wasn't giving up yet... What about paid peering and BGP multi-homing?



# Realities of Transit

- ISPs: We are the professionals. You are a customer. We know networking better than you. Leave BGP to us.
- IXPs: Multi-homing is good! Don't put your eggs in one basket!
- Customers: Well, gee, that sounds logical enough... Let the ISPs do their jobs... Still, we like control. I'm confused!
- Routers are more expensive than I thought (open mouth, insert crow)

# Realities of Transit

- We did it anyway, using salvage parts
- Still seeing RFC1918 addresses announced by peers (the professionals)
- Upstream peering issues lead us to want to “route away” from a backbone in certain situations
- Maintenance has been easier with multi-homing and peering available
- Reduced page assembly time through the use of paid peering

# DDOS Looks Different From Down Here

- With Digg, I want control, so proxying everything for occasional attacks is not desirable
- Upstreams and their upstreams may or may not have a consistent DDOS blocking policy
- Backbone operators see “traffic anomalies.” I see pure, unadulterated evil. This is a very different world.

# DDOS Attack Transcript

<A> digg.com / revision3.com.

<A> tonight.

<A> :<.

<B> we wull see.

<A> f@#\$ing kevin rose.

<A> i miss.

<A> my old bots.

<A> from like.

<A> 2 years.

<A> i had.

<A> 1.8 million.

<A> :<.

<A> my biggest.

<A> channel.

<A> was.

<A> 980k.

<A> now i got sh!t.

<B> lol.

# DDOS Attack Transcript

<C> gimme the ips you need nulled/f@#\$ed with.

<A> lets just wait.

<A> till later.

<A> nothing big is happenin now.

<C> ok.

<A> well.

<A> [www.digg.com](http://www.digg.com).

<A> if u want.

<C> kk np.

<C> kk done.

<B> stop doss

<B> so i can read a bit

<B> lol

<A> rofl.

<A> no.

# DDOS Looks Different From Down Here

- Turns out, Digg's Netscaler 10010s with 1Gb ports upstream are as good a solution as any
- We can handle 250k http reqs/sec, 500k TCP reqs/sec, SYN flood of over 2 million pps
- 1.8 million bots couldn't generate enough...
- No, that's not a challenge, stop writing, I won't buy you a beer if you prove me wrong

# DDOS Looks Different From Down Here

- Revision3 uses a CDN, BitGravity, so they have no 1 Gb ports or fancy Netscalers
- Nobody expects RIAA/MediaDefender to DDOS attack you on Memorial Day weekend
- Revision3 now proxies through someone else
- Moral of the story: Having enough knowledge and control to quickly move to a proxy is critical

# Racks, Power and Datacenters, WTF

- Spent twelve years of my life building datacenters and learning about their use
- It's the last thing I ever want to do again. I deserve to be the customer now!
- I was mentally prepared to pay for power
- No one will ever meet the bar I set, I feel *really bad* for my datacenter providers
- Current distressed, acquired datacenters that have been up-converted often suck in subtle ways (humidity, multiple busses, raised floors, security)



# Smart Hands and Not-So-Smart Hands

- I put this slide in here because I know I'm going to get asked this question: "How does it feel to be the guy ordering it now?"
- Smart Hands have proven to be only as smart as we are
- Watching from the other side, I learned how to mitigate risks in the way we order services

# The Realities of Shipping

- Datacenter Providers: If you want security, we have to know it's coming. Period.
- Customers: We don't know when it's coming, so how the hell will you know when it's coming?
- Datacenter Providers: Have your vendors put a ticket number on their boxes.
- Customers: Have you met our vendors? Are you joking?
- Solution: Pay double shipping costs and stage it yourself at HQ, then re-ship to datacenters

# Conclusions

- Yes, customers really are out to get you
- Even if we know you're trying as hard as you can, we will still yell at you until we get what we want
- Customers like control, so give them more self-service options and they will be happier
- It's much easier down here on the topology
- If you want to sell me something, put the product on a web page and let me bypass a salesperson
- Final hint: If you spam me, I will never buy anything from you. *Ever.*

*Thank You.*

Jay Adelson

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