

IPV6

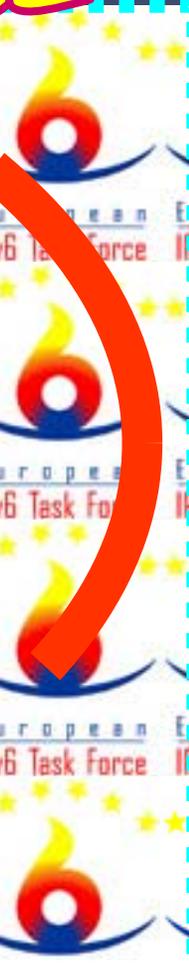
Two-way Internet

HOST-2-HOST

Peer-2-Peer

GRID-2-GRID

ANY-2-ANY





NORMAL



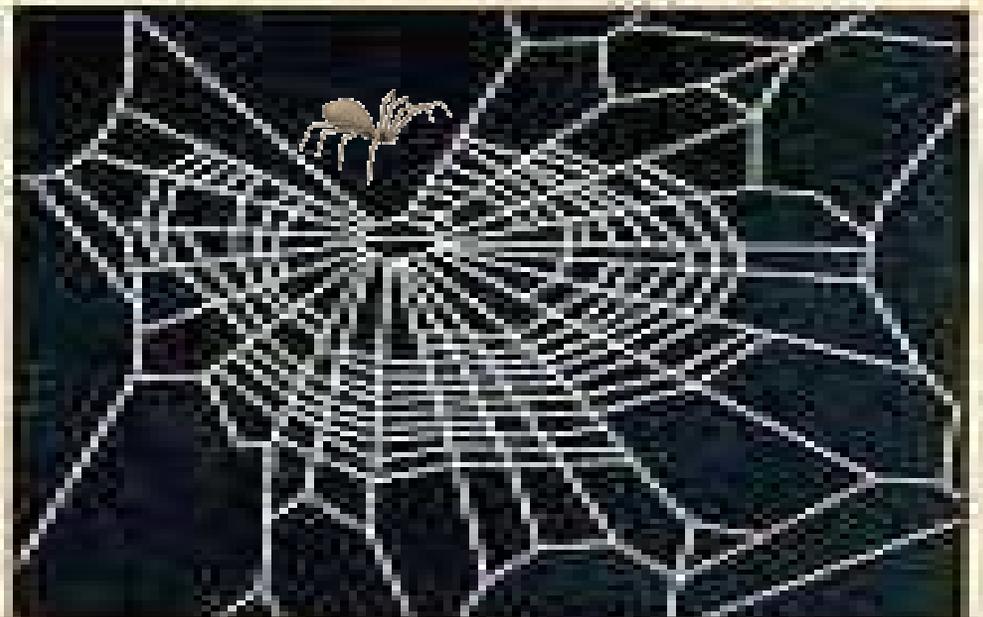
NORMAL



CAFFEINE



NORMAL



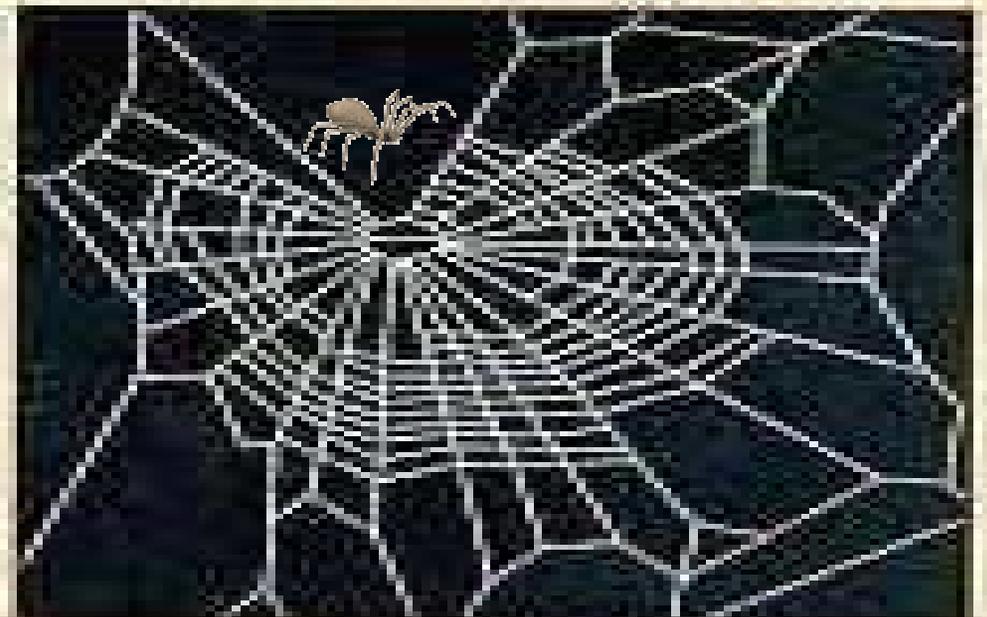
MARIJUANA **NAT**



CAFFEINE



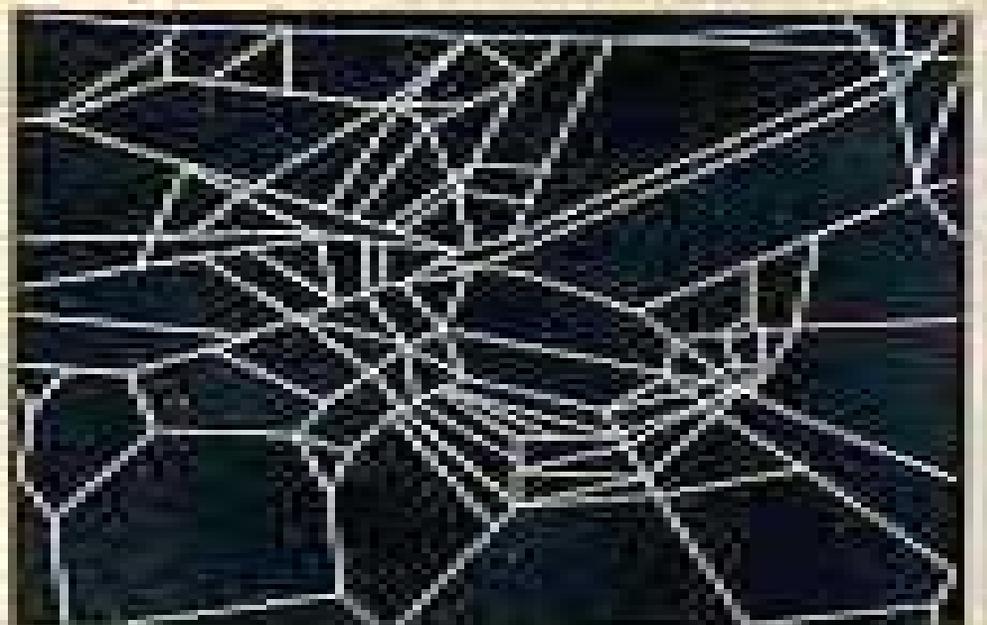
NORMAL



MARIJUANA **NAT**

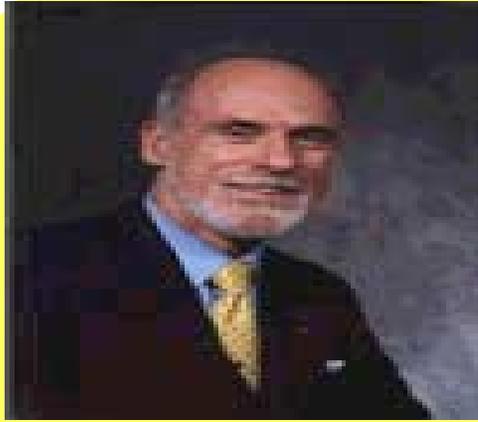


CAFFEINE



BENZODIAZEPINES **STUN-med**





**”Running out IP
Addresses is like
running out Oil!”**

Vint Cerf 2004



No Urgency

Some Urgency

Emergency

So, Why Bother?

E2E – The Best Kept Secret

Complexity rises as technology exceeds its design limits

Maintenance costs become excessive

Workarounds become endemic

Logical End-to-End model sacrificed



Phone Call + Call back



E2E IP Multimedia Connection



The New Internet in the making

Filesharing **Symm**etric **Ressource**
& **Sharing**



Instant **Interactive** **Collaborative**
Communication **Computing**

E2E

Killer Apps



A Brand New Experience







The Long Term Business Drivers

Technologies /Sectors	IPv4	IPv6	Operators/Organisations/Users
3GPP/3GPP2	YES	YES	
Defence	YES	YES	German, French MOD
European Space	YES	YES	ESA
Car Industry	YES	YES	Car2Car
DVB	YES	YES	DVB Consortium – Luxembourg SES - ETSI
GRID	YES	YES	Global Grid Forum
Smart Home	YES	YES	CENELEC

Immediate Industry Drivers Recommendations

Technologies /Sectors	IPv4	IPv6	Operators/Organisations/Users
Broadband P2P VoIP	YES S YES IPv4 4	NO NO NO	DSL Forum WiFi/WiMax/ SIP

Broadband Access



Europe



India BB

BBTTH – 2008

20 Mio Users

e-Taiwan

BBTTH – 2008

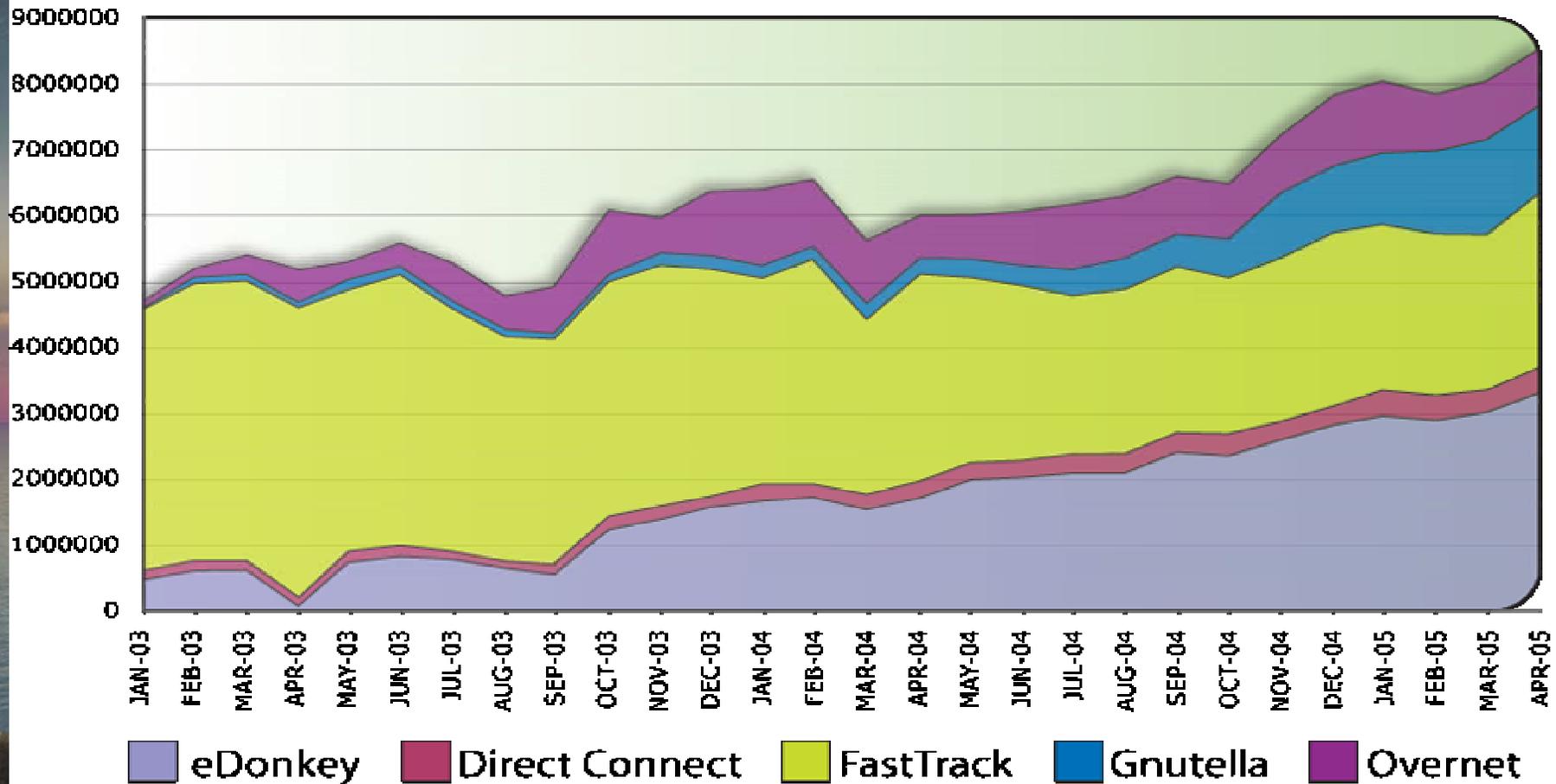
6 Mio Users



Japan

P2P Downloads Still Growing

Active Members on P2P Networks

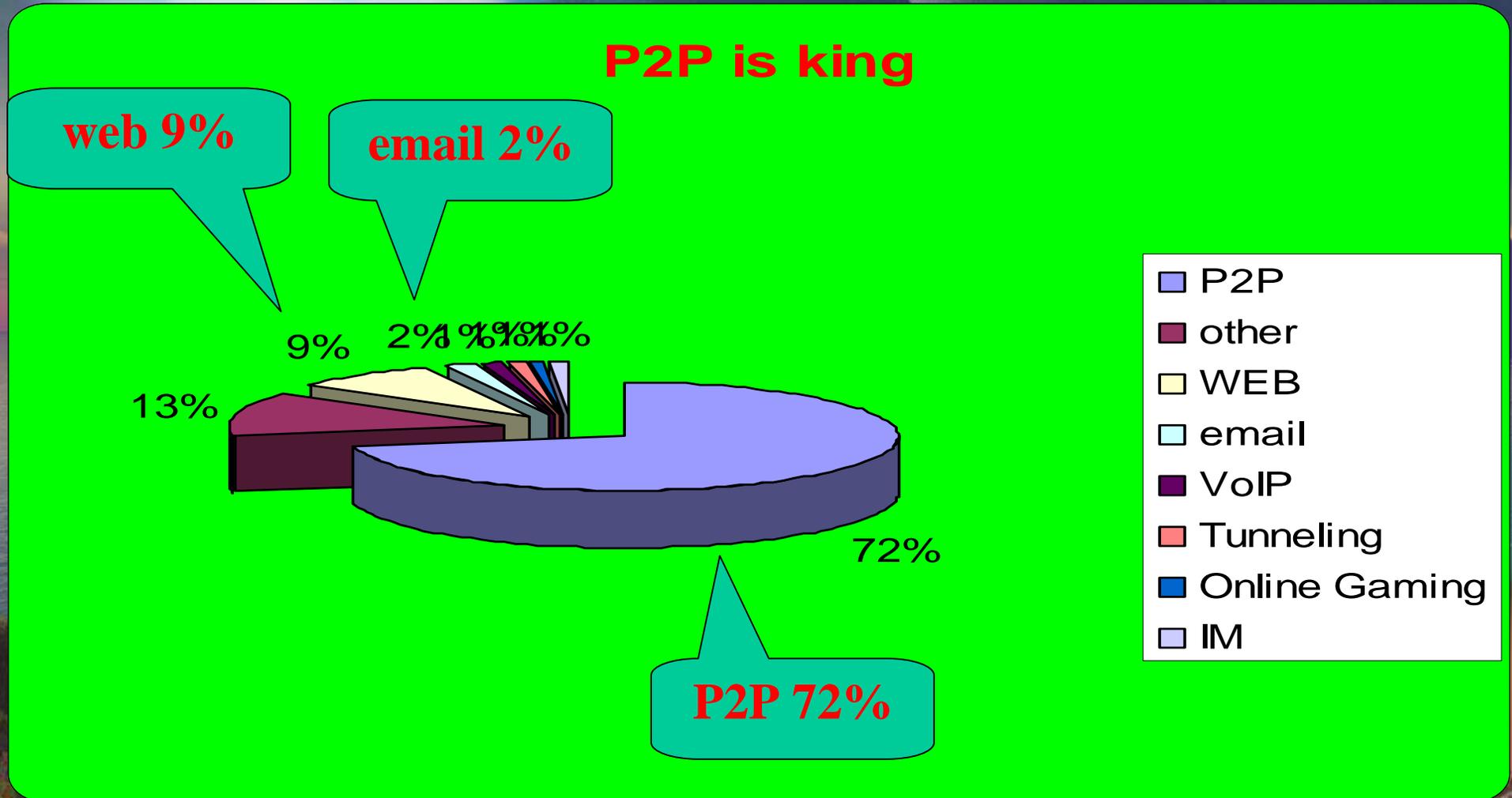


Source: www.slyck.com, 2005

Over 1 billion P2P client downloads

P2P Traffic Consumes Over 70% of ALL Bandwidth

P2P is king



P2P 72%

web 9%

email 2%

13%

9%

2%

1%

1%

1%

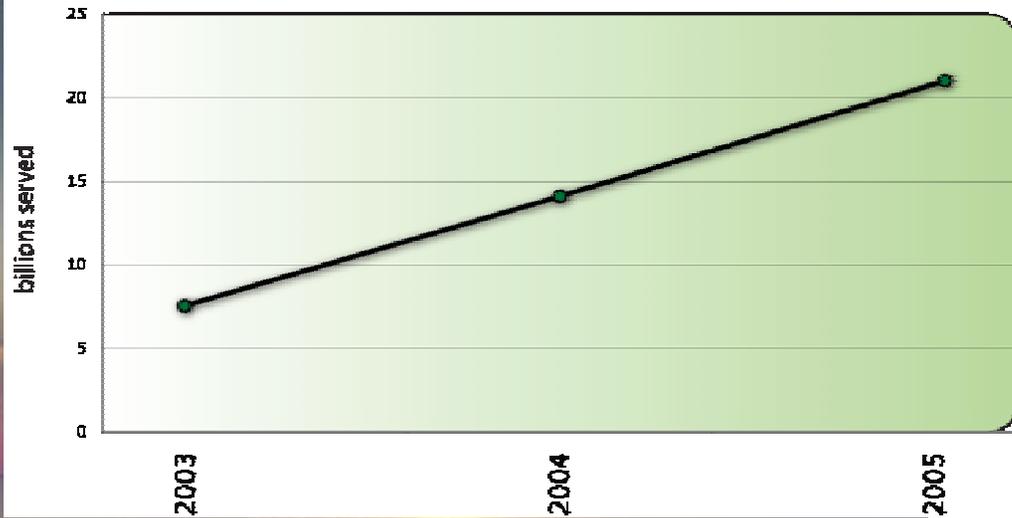
1%

72%

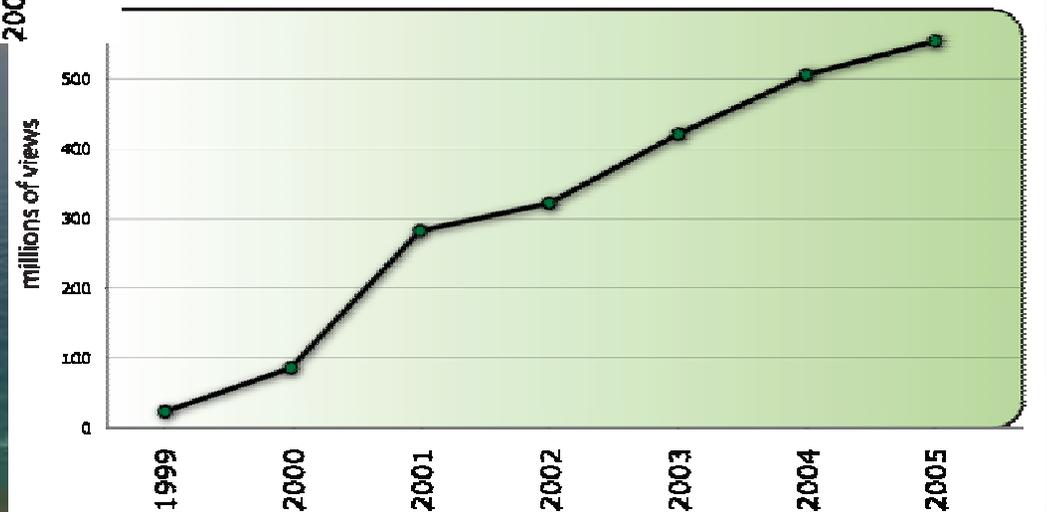
P2P 72%

Over 20 Billion Video Streams

Video Streams



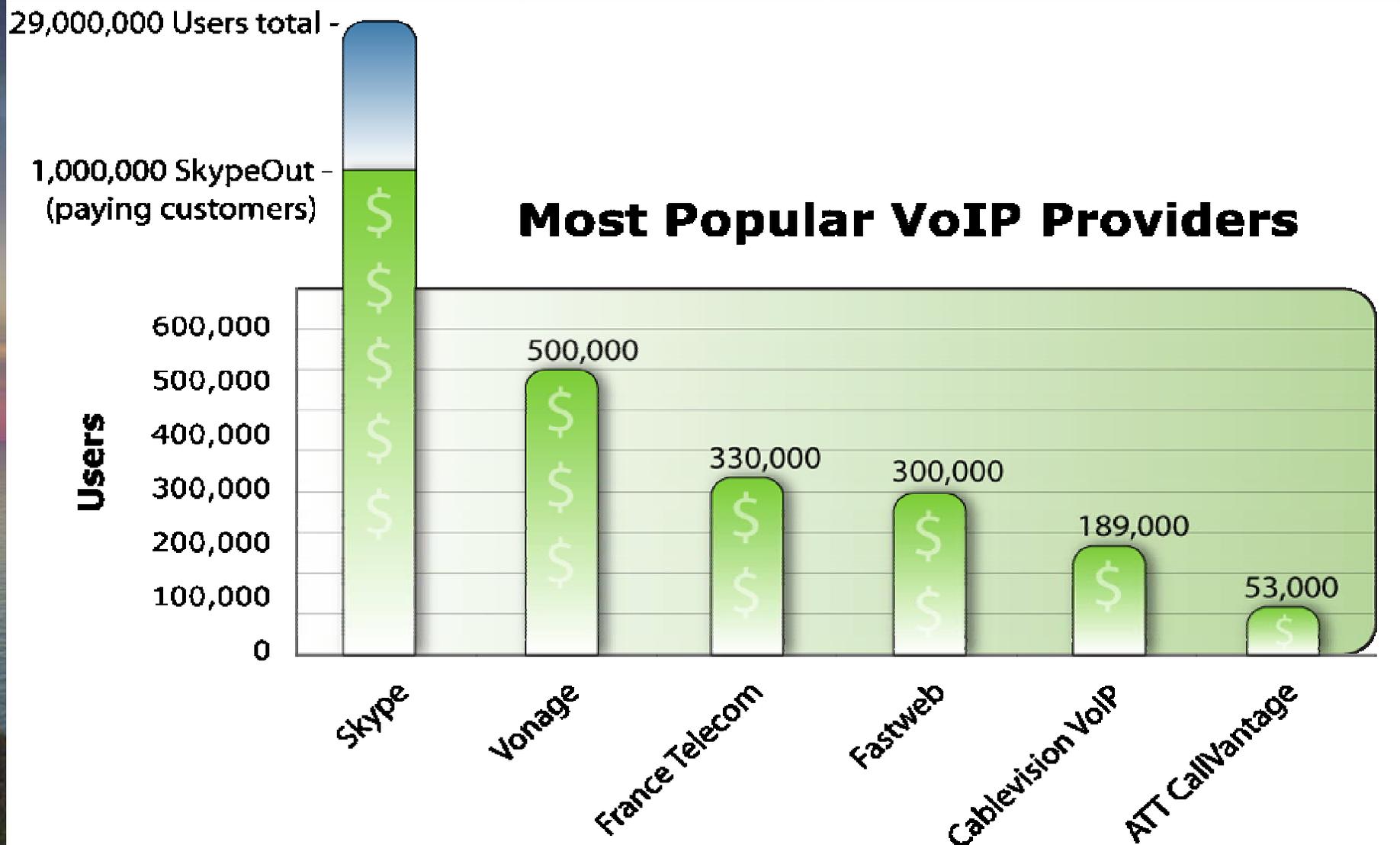
Internet TV



Source:

AccuStream
media research

Most Popular VoIP Providers



Sources:

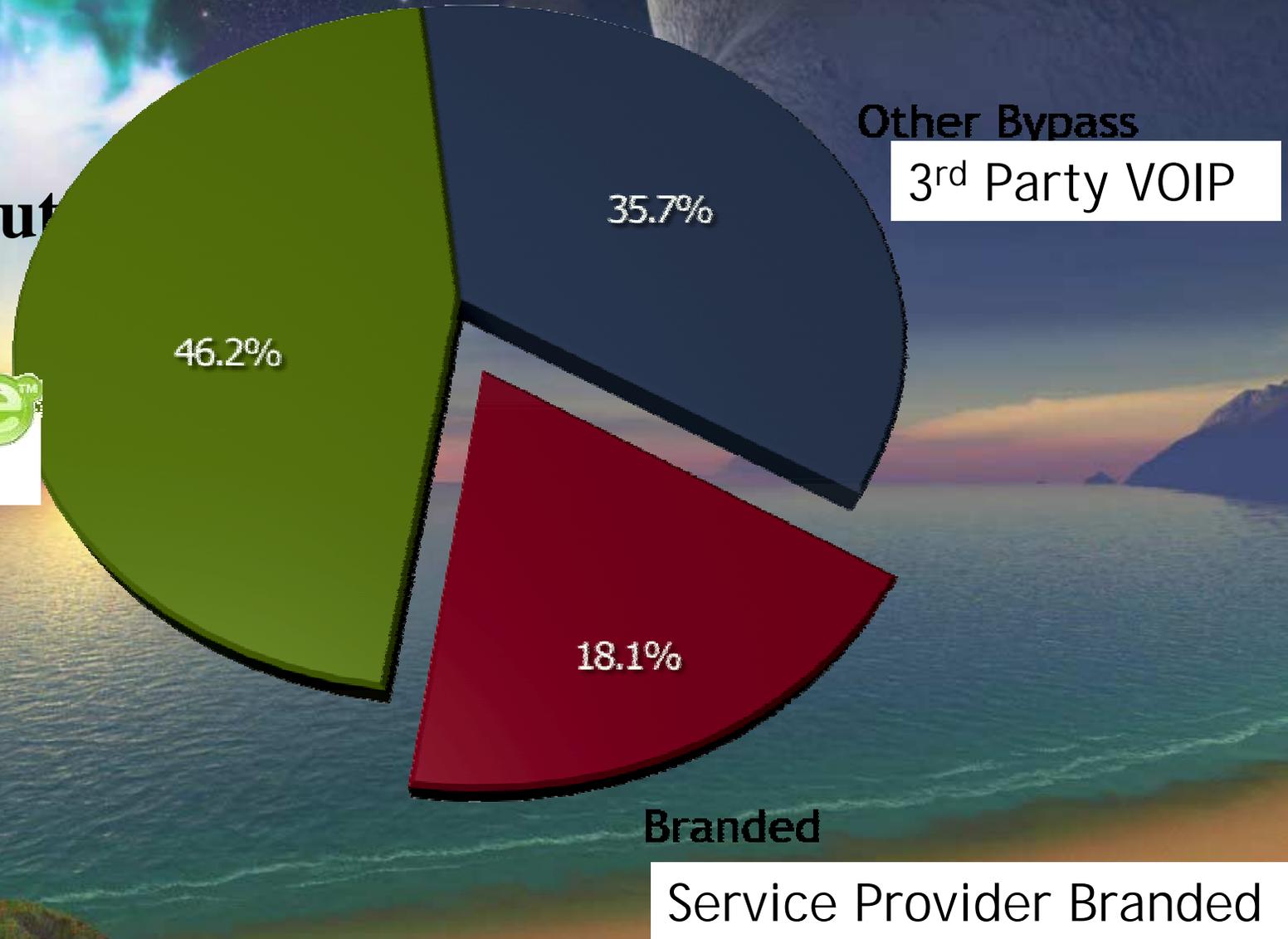


1000+ VoIP Providers



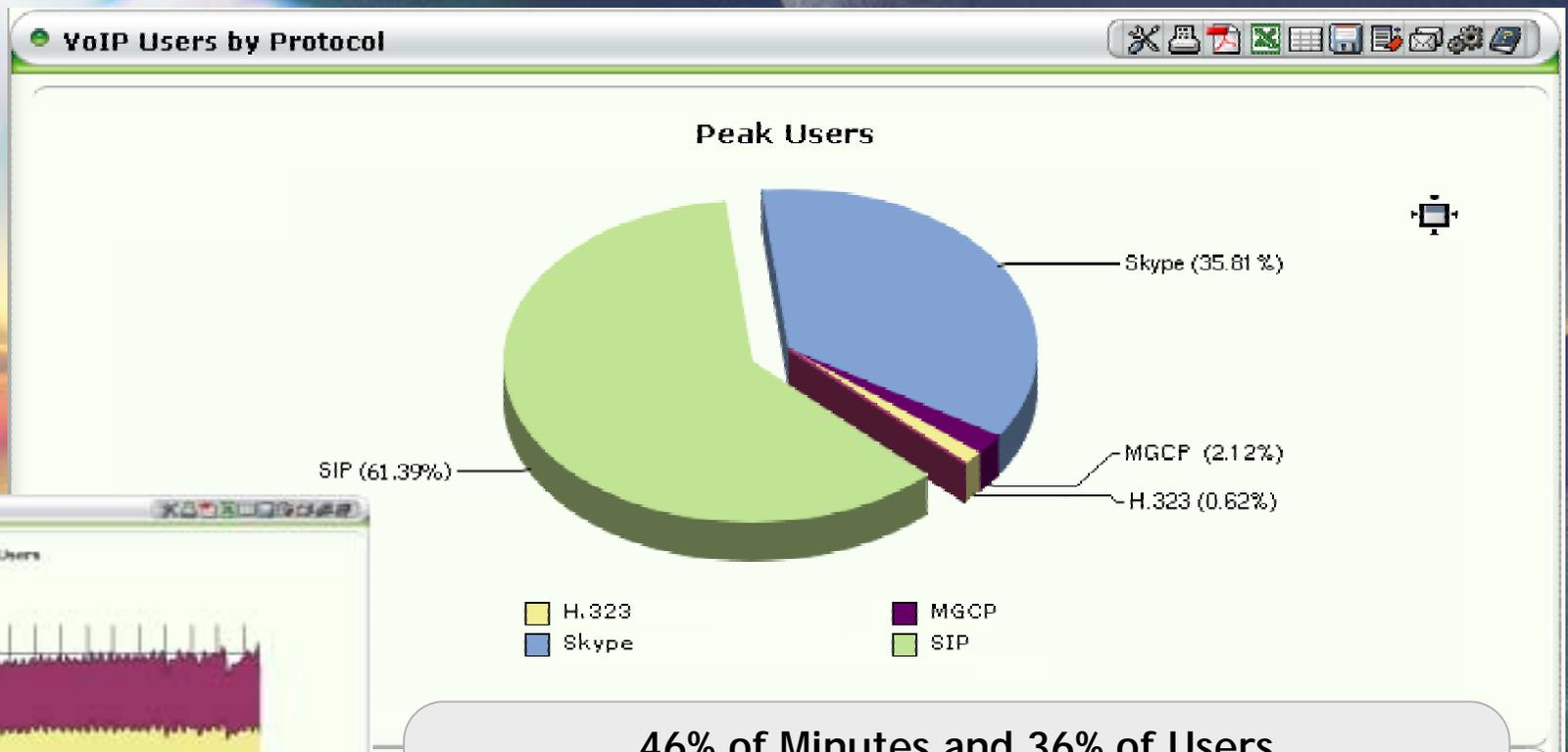
VoIP Competitive Landscape

- Minut



Skype Hype? ...Nope

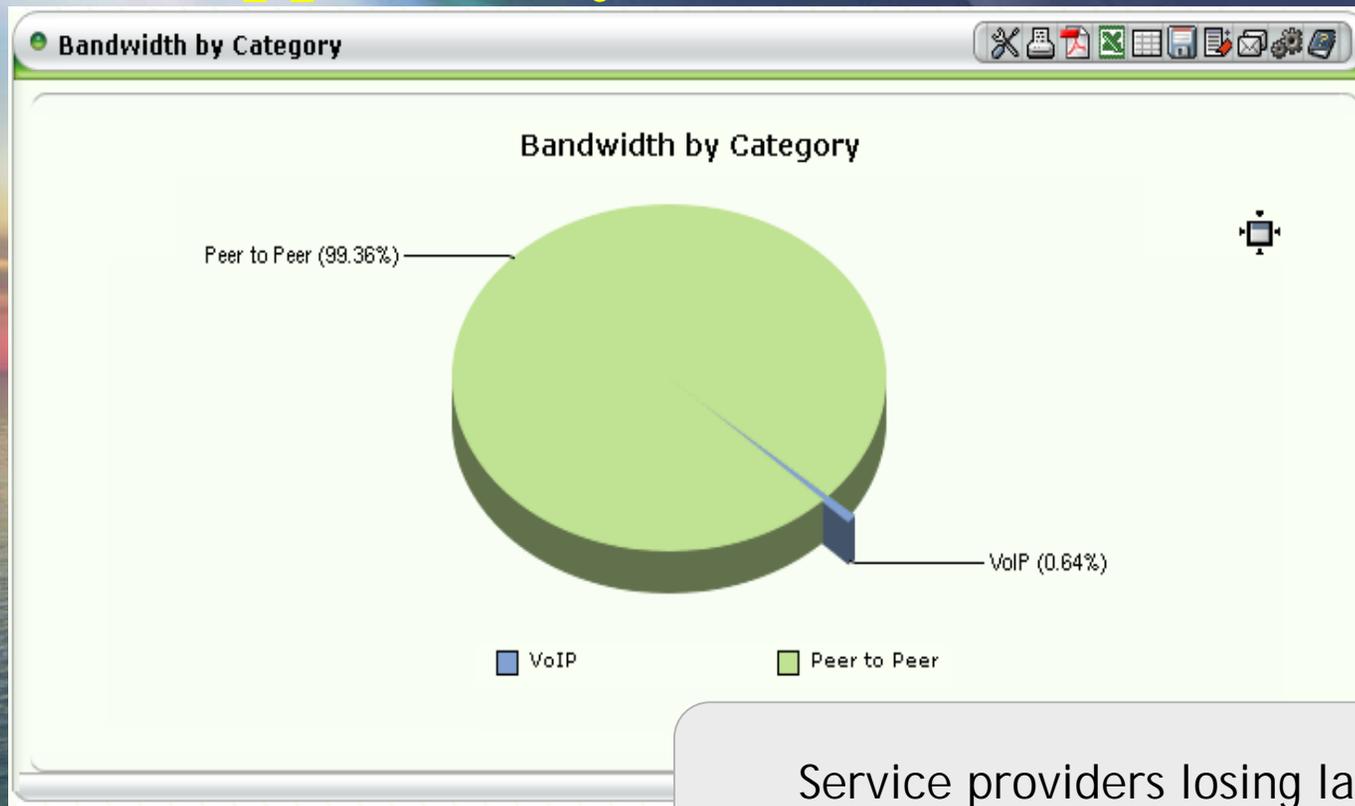
- Lots of users or just heavy users?



46% of Minutes and 36% of Users
Skype is used by many people
-minutes are not just the result of a few
heavy users

Revenue Opportunity

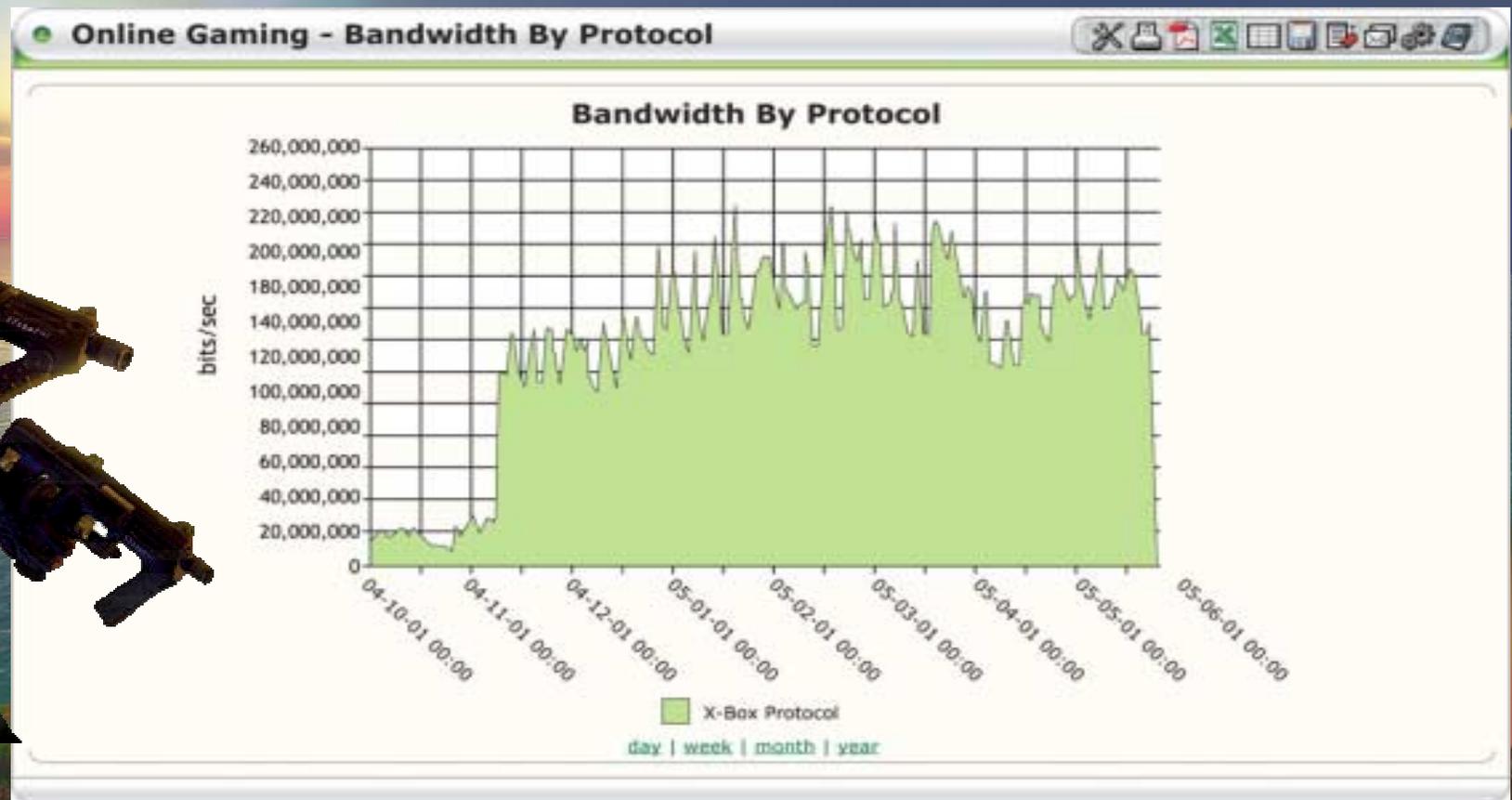
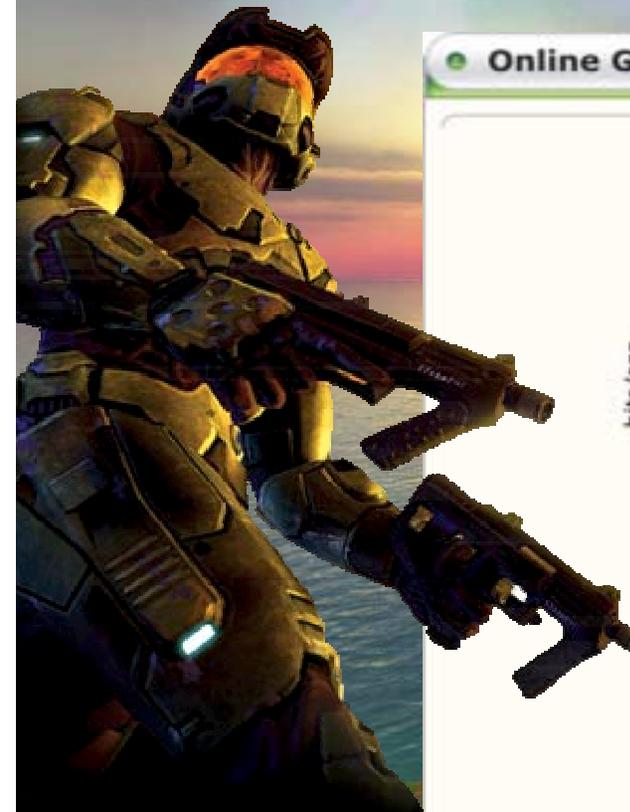
- Very small percentage of bandwidth, but large revenue opportunity



Service providers losing large revenue opportunity to 3rd party bypass

Gaming Revenues Surpass Hollywood!

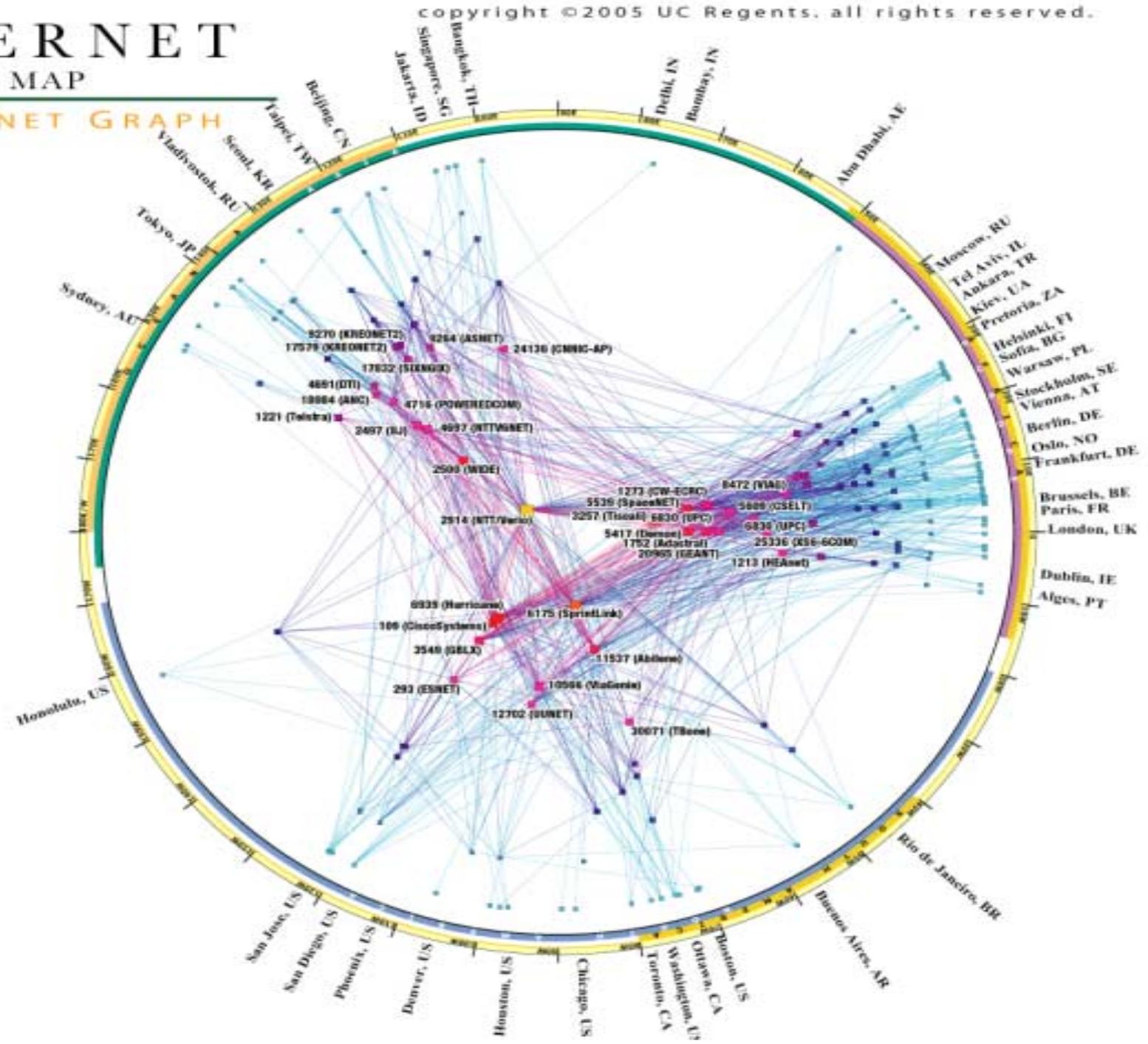
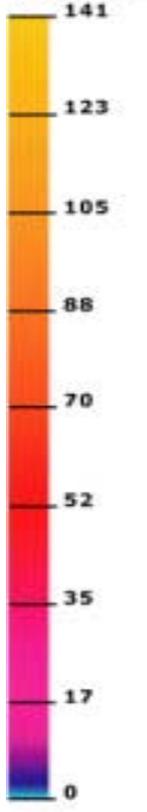
- 2004 gaming revenues reached \$9.9 billion compared to movie theater revenues of \$9.4 billion
- PC online games surpassed \$1 billion
- Gaming traffic spiked with Xbox Live Halo2 launch and sustained



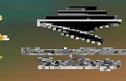
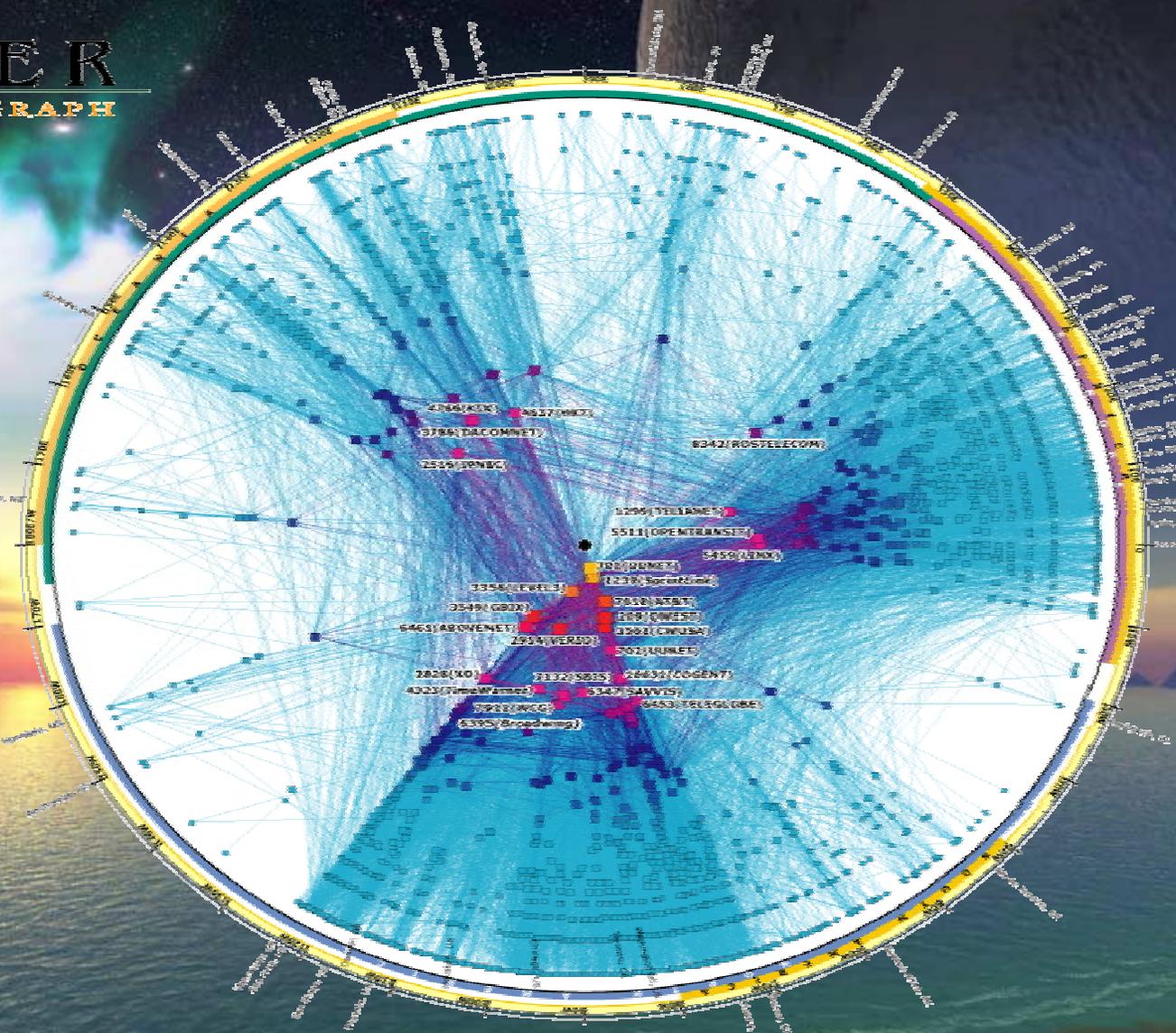
IPv6 INTERNET TOPOLOGY MAP

AS-level INTERNET GRAPH

Peering:
OutDegree

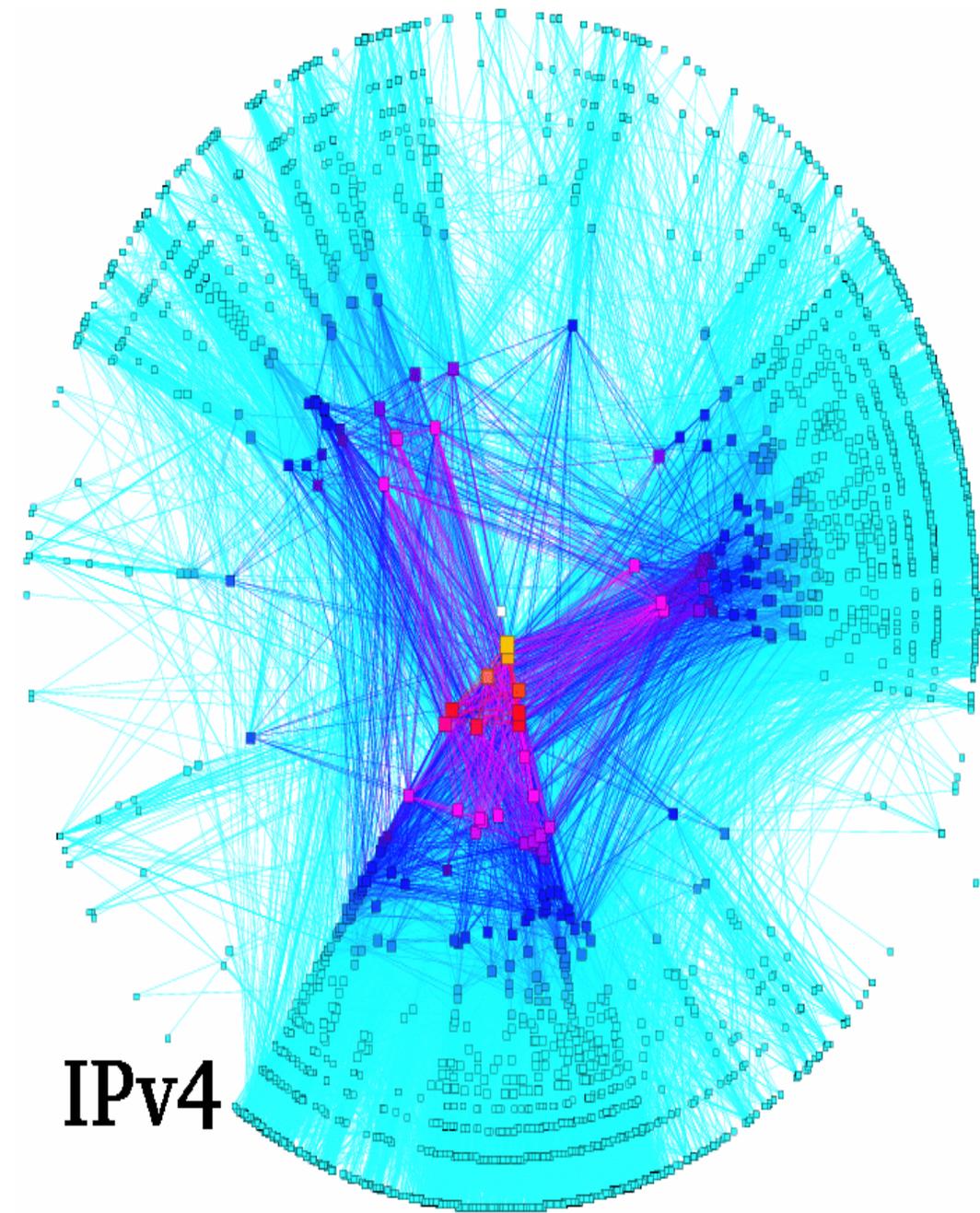


SKITTER AS INTERNET GRAPH

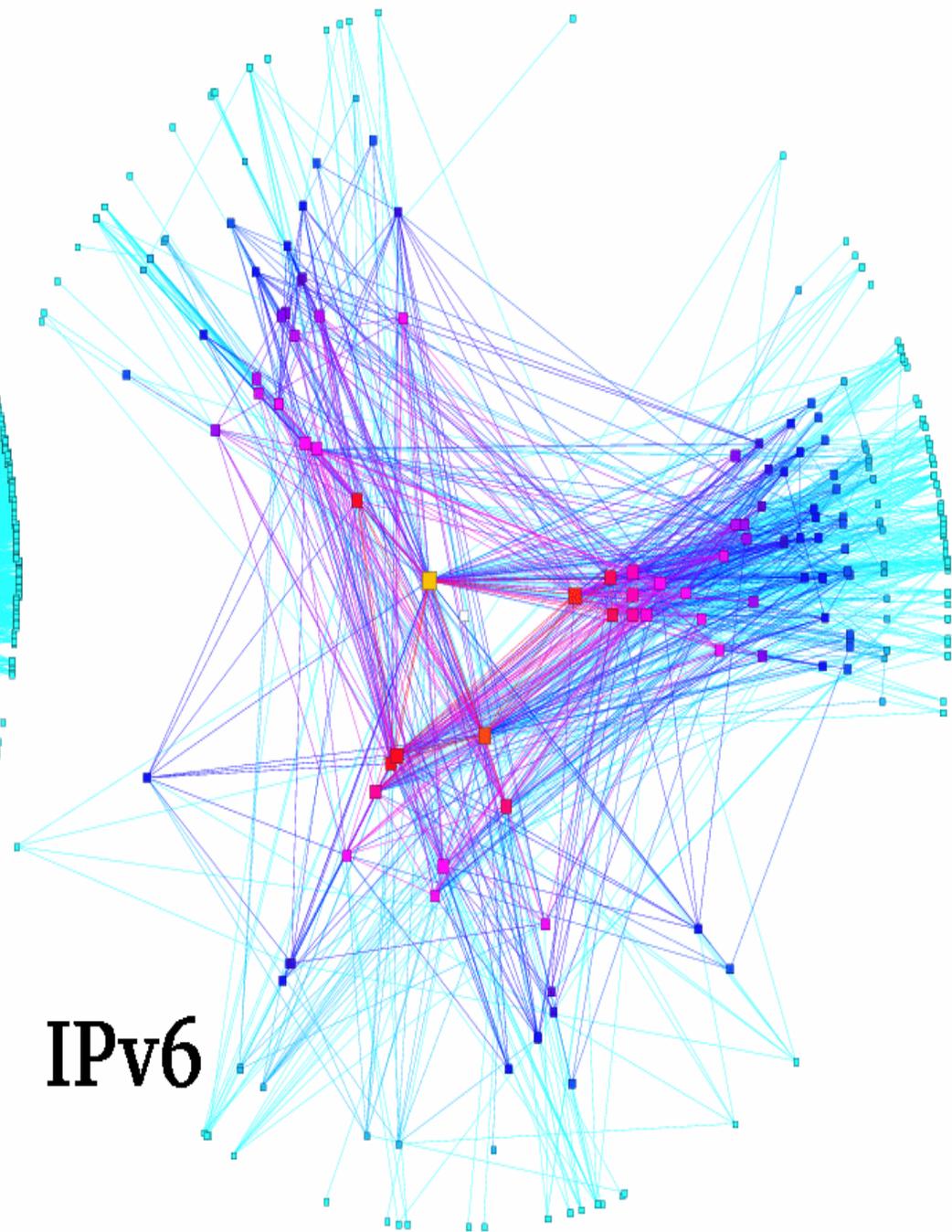


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9500 gilman drive, menlo park © la jolla, ca 92037-0001 © mail: info-ask-@caida © http://www.caida.org/

CAIDA is a program of the University of California's San Diego Supercomputer Center (UCSD/SDSC)
CAIDA's topology mapping projects are supported by DARPA, NCS, NSF, WIDE and CAIDA members

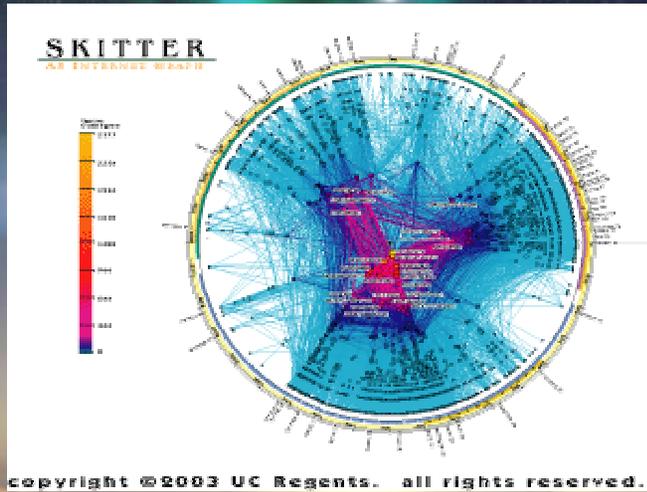


IPv4

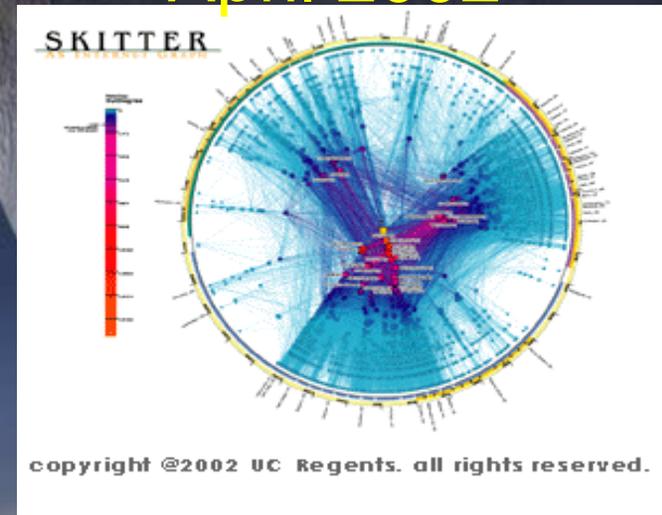


IPv6

April 2003



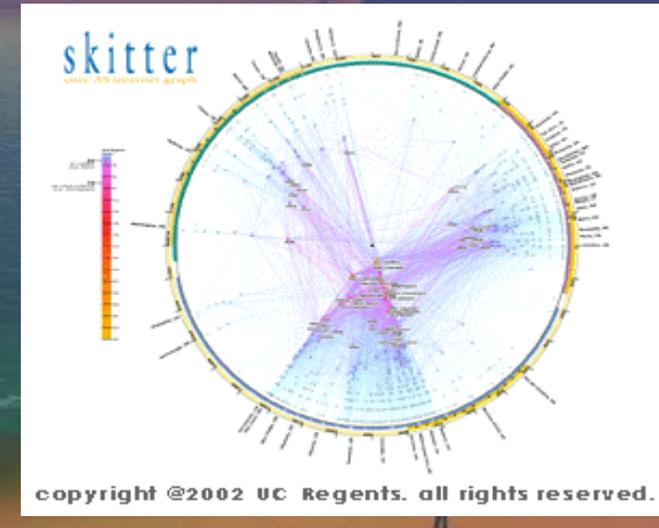
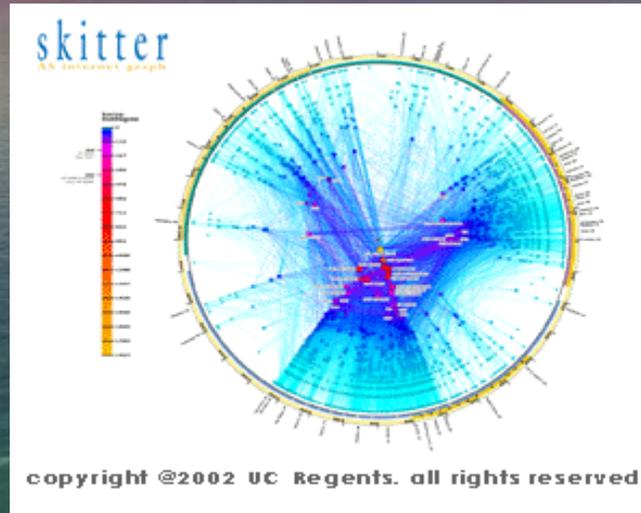
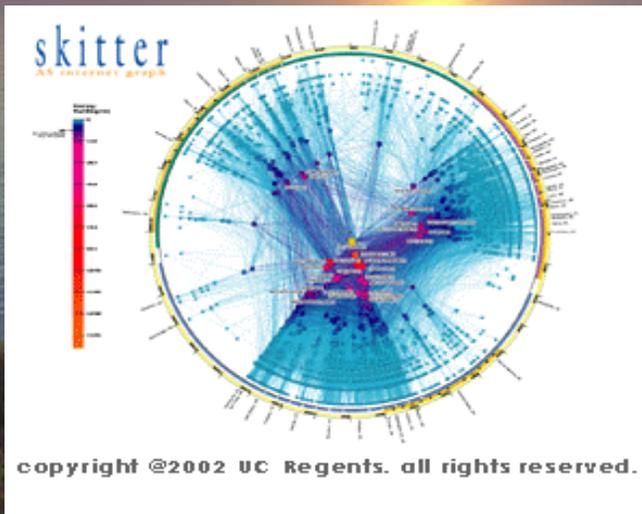
April 2002



July 2001

October 2000

January 2000



End 2 End
Muscle



Addressing The Edge

**End 2 End
Secure
Always-On
Connection**

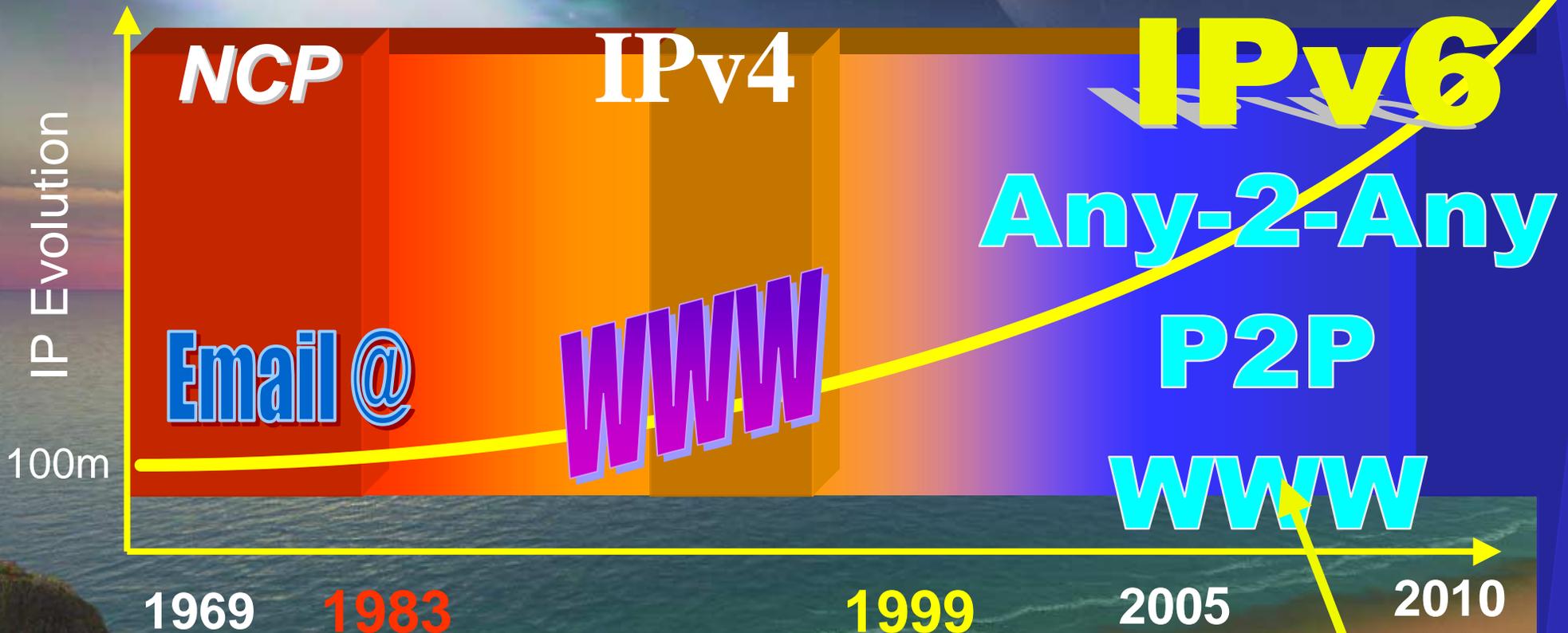
Power To The Edge



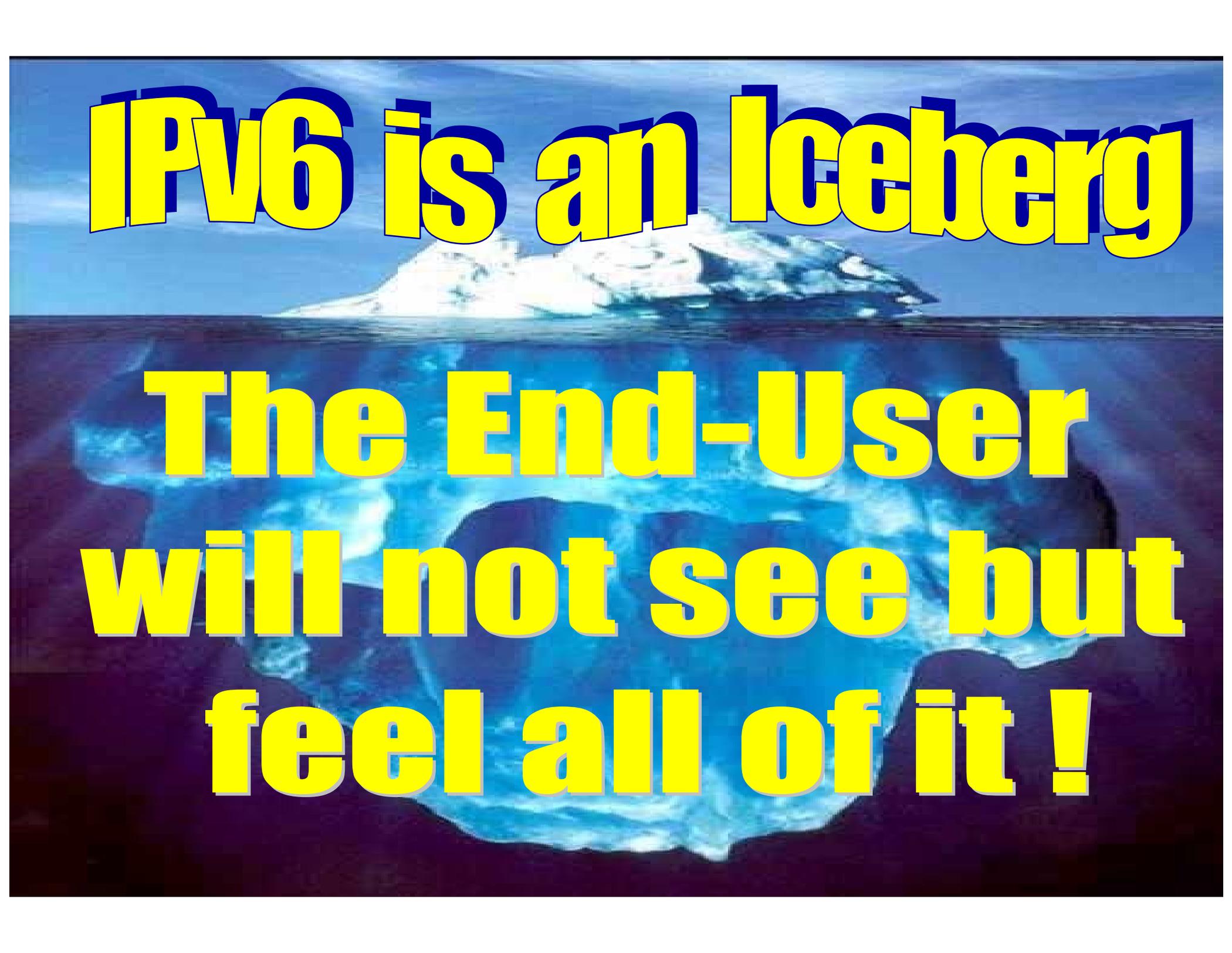
The New Internet

Roadmap

1 billion +
Connected Devices



Worldwide Wireless

An image of an iceberg floating in the ocean. The tip of the iceberg is visible above the water surface, while a much larger, submerged portion is visible below. The water is dark blue, and the sky is light blue with some clouds.

IPv6 is an Iceberg

**The End-User
will not see but
feel all of it !**