

# BGP and the Rule of Custom

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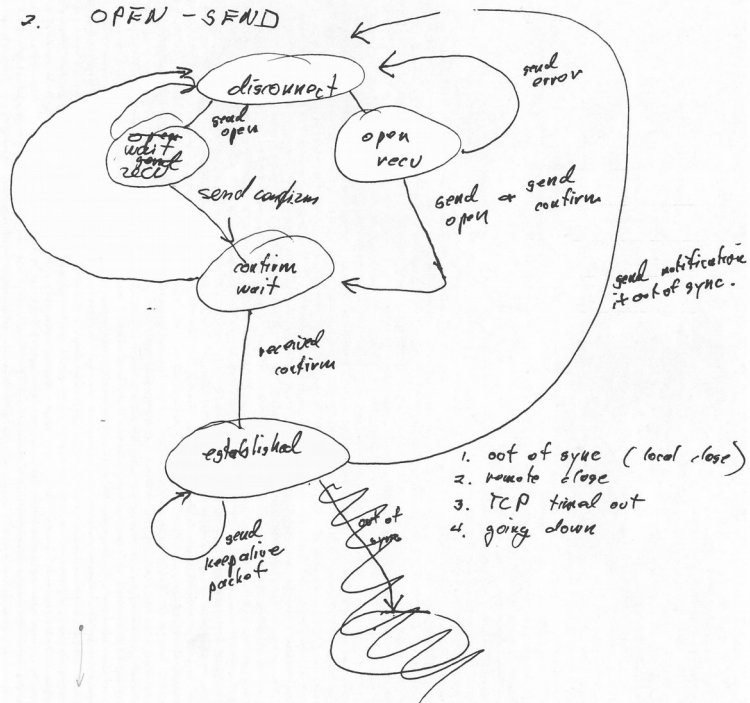
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# State Diagram

- initial state is DISCONNECT
- OPEN - SEND



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 (914) 045-3896 (8-5) EST

# B.G.M.

Boundary Gateway Protocol	block length	2 bytes
	version number	1 byte
	block type	2 bytes
	holddown timer	2 bytes (minutes)

types: open - 1  
 update - 2  
 notification - 4  
 keepalive - 8

version is currently 1

open: my AS # 2 byte  
 link type 1 byte

up - 1  
 down - 2  
 internal - 4  
 H-link - 8

(not used in update direction field)

auth type code 1 byte  
 0 - none

authentication variable

update:
 

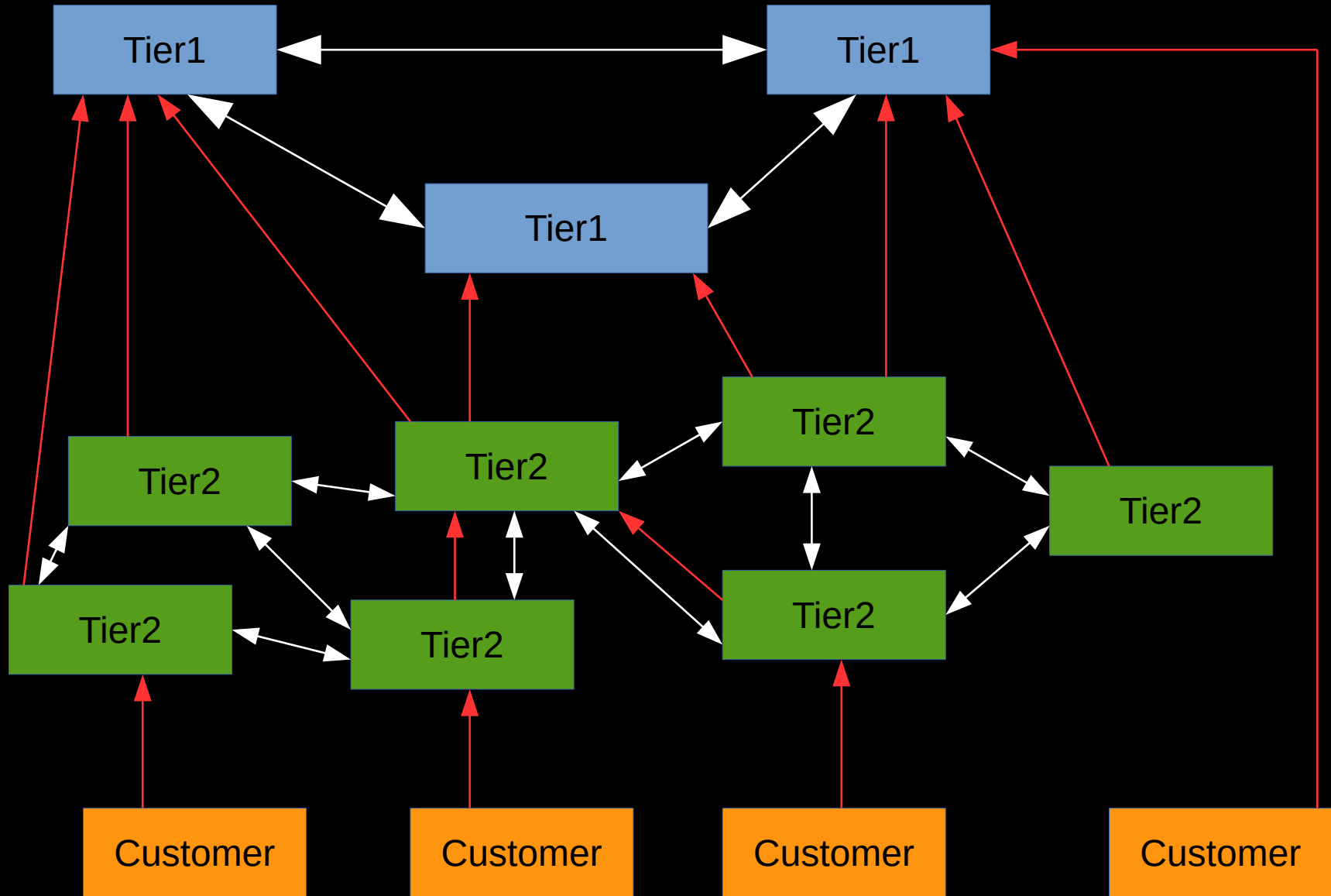
network #	4 bytes
first hop gateway	4 bytes
metric	2 bytes
count of AS	1 byte
direction	1 byte
AS #	2 bytes

 } repeat "count" times

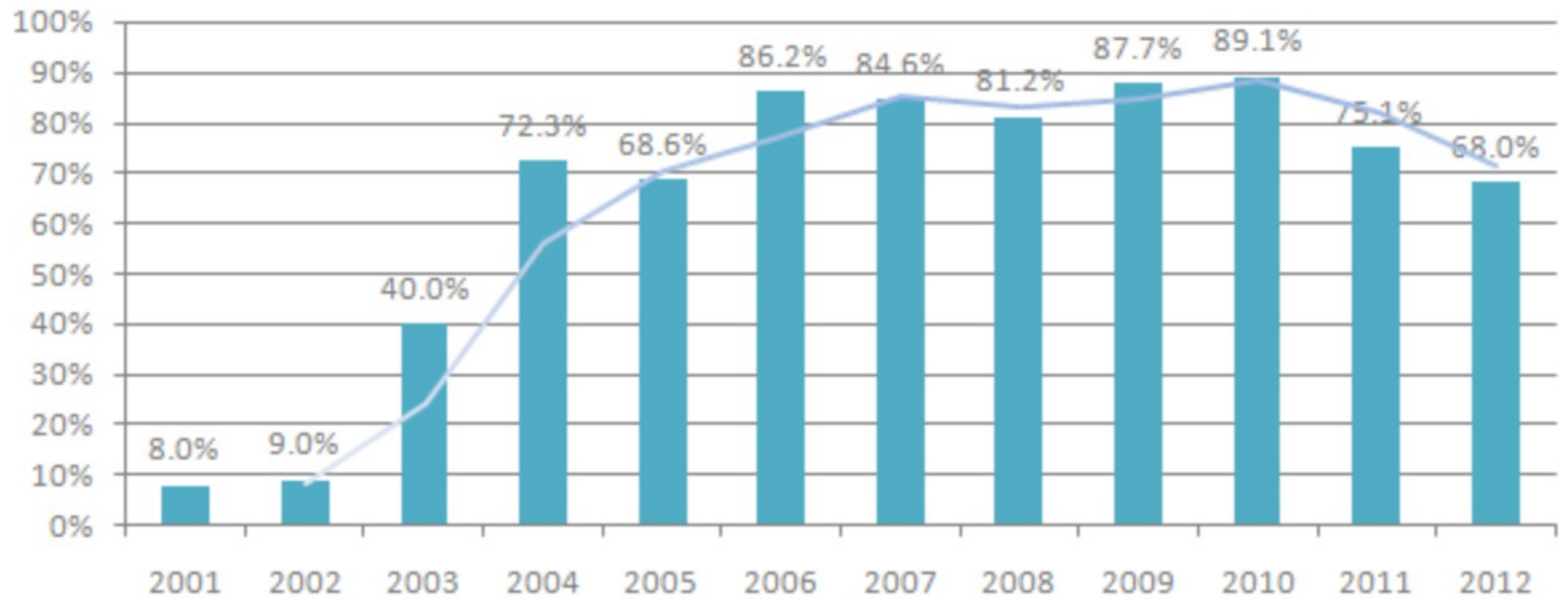
notification: ~~op~~ op code 2 bytes  
 data variable

# What is BGP

- Mesh protocol
- Used by all internet routers when communicating across organizational boundaries, the lingua franca of the internet
- Uses centrally issued AS Numbers to identify organizations and IP addresses to identify endpoints
- Interconnections between organizations are public knowledge



## Spam Rate Over Time



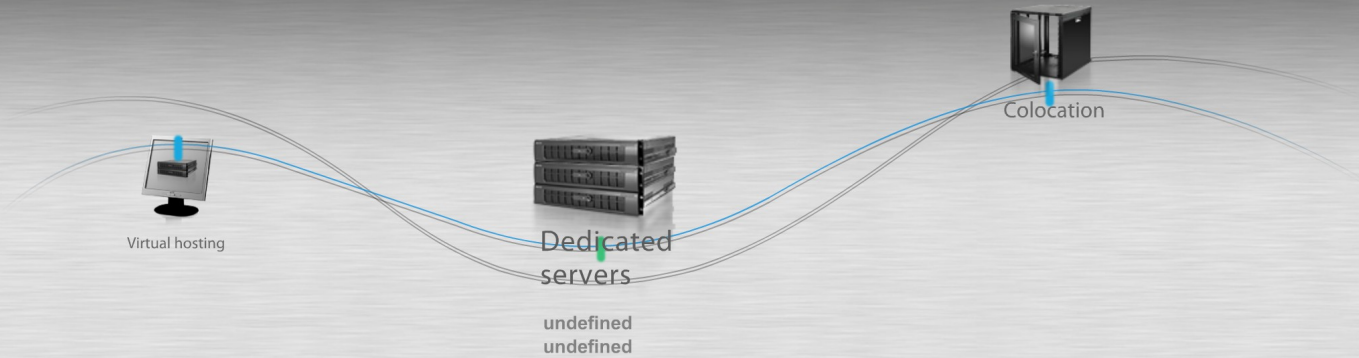
# Internet Organizations

- **Customer** (me)
  - Relatively anonymous
  - At the mercy of my provider
  - Can usually choose my provider
- **Provider** (Hosting company, ISP, VPN)
  - Not anonymous
  - Needs to keep customers happy
  - Must not upset their upstream provider (Network Operator)
- **Network Operator** (Tier 1, Tier 2)
  - Not anonymous at all
  - Needs to keep customers happy
  - Must not upset other Network Operators
- **Internet Civil Society** (Team Cymru, Spamhaus)
  - Members may be anonymous
  - Power derived from reputation
  - Relies on transparency of Providers and Network Operators



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ENTER MEMBERS' AREA

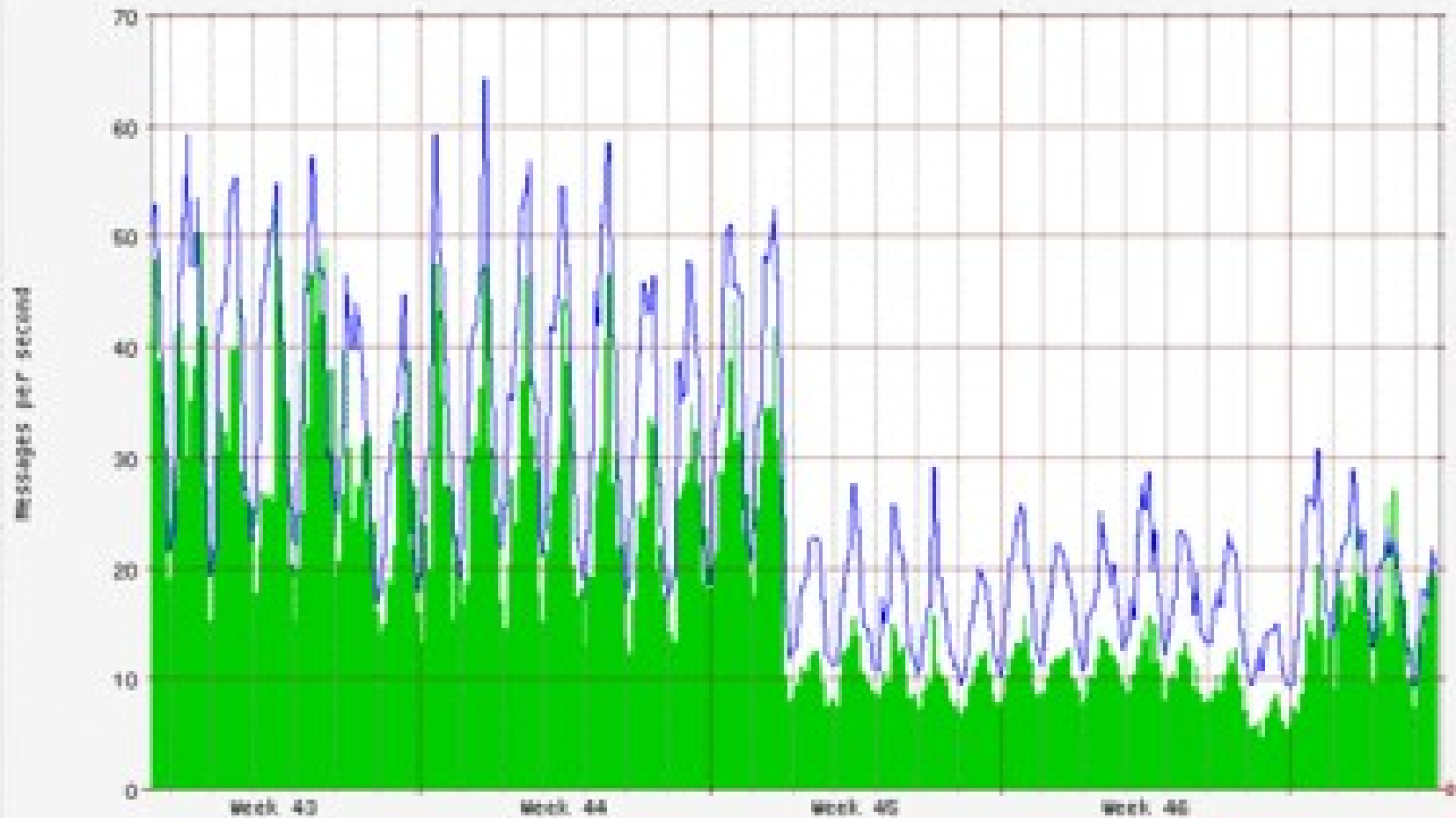
LOGIN	<input type="text"/>
PASSWORD	<input type="password"/>



[Webmasters](#)



### SpanCop Statistics



■ Spam Submitted ■ Reports Sent

Average Spam : 19.9 messages per second Max Spam: 62.5 messages per second

Total Spam (last month): 61674808 messages

Thu Nov 27 12:50:28 EST 2008

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## Welcome to PRQ!

We are a specialized hosting provider, located in Sweden, a free-speech haven. We serve a growing community of international clients with special needs.

## What we do

PRQ is globally known for:

### Refugee hosting

Our boundless commitment to free speech has been tested and proven over and over again. If it is legal in Sweden, we will host it, and will keep it up regardless of any pressure to take it down.

We have ZERO tolerance against SPAM and related services!

### Confidentiality

We defend your integrity to the end. With our discreet customer relations policy we don't even have to know who you are, and if we do, we will keep that knowledge strictly confidential.

### Technical proficiency

The PRQ team has a solid background in computer networking, security, hardware, and software. Most of us have been online for over 10 years. We can assist you with almost anything - keeping your servers secure, or keeping your high-traffic websites up and running smoothly. To make this possible, we run our own fully multi-homed backbone network (AS33837), with the capacity needed both to handle large DDoS attacks and to provide excellent connectivity to customers with bandwidth utilization ranging from a few Mbps to several hundred.

PRQ, Box 1092, S-172 22 Sundbyberg / [info@prq.se](mailto:info@prq.se)



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## Legal threats against The Pirate Bay

Microsoft: email (we get tons of these)

Mono Music: email (swedish)

DreamWorks: email postal mail our response

EA: email our response

Uppsala universitet: emails our response mail exchange back and forth final mail (they also called the phone# in whois) (swedish)

ADV Films: email our response

Subliminal Sounds: email our response 2nd mail and response

As you may or may not be aware, Sweden is not a state in the United States of America. Sweden is a country in northern Europe.

Unless you figured it out by now, US law does not apply here.

For your information, no Swedish law is being violated.

Please be assured that any further contact with us, regardless of medium, will result in

a) a suit being filed for harassment

b) a formal complaint lodged with the bar of your legal counsel, for sending frivolous legal threats.

It is the opinion of us and our lawyers that you are fucking morons, and that you should please go sodomize yourself with retractable batons.

Please also note that your e-mail and letter will be published in full on <http://www.thepiratebay.org>.

Go fuck yourself.

Polite as usual,  
anakata

# Lessons for Protocolsmiths

## 3 sources of Rules/Customs

- **Hardcoded**
  - Very fair but cold and inflexible
- **Central Authorities**
  - More than fair: *equitable*
  - Often bureaucratic and inflexible
  - Prone to power politics
- **Networks**
  - The most humane source of rules
  - Very unfair
  - Prone to abuse

*With power should come transparency*

# Thank you

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