

# Service Starts Suck

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A close-up portrait of a woman with a pale, white-painted face. She has dramatic black eye makeup that extends upwards from her eyes, and her eyes are a striking red. She is wearing a dark, ornate crown with intricate designs. Her lips are painted a deep red. The background is a plain, light gray.

Beware the Black Swan

& Phone services for SMBs

# The Business

- ⌘ Phone services for SMBs
- ⌘ *Hosted* Phone services for SMBs

# The Business



- ⌘ Phone services for SMBs
- ⌘ *Hosted* Phone services for SMBs
- ⌘ *Hosted Cloud Communications* service for SMBs

# The Business

- ⌘ Phone services for SMBs
- ⌘ *Hosted* Phone services for SMBs
- ⌘ *Hosted Cloud Communications* service for SMBs

The Business



MTCE

TONE CLOCK

1  
EXPW  
INTFC

2  
EXPW  
INTFC

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

POWER UNIT

POWER SUPPLY







vmware®





# The Metrics



& Phone Calls per Second

# The Metrics

& Phone Calls per Second

**x 1000**

# The Metrics

& Simultaneous Phone Calls

# The Metrics

& Simultaneous Phone Calls

**x 10,000**

# The Metrics

& HTTP API requests

# The Metrics

& HTTP API requests



# The Metrics

& Big pipes

# The Infrastructure



- ⌘ Big pipes
- ⌘ Polyglot (Erlang, Java, Ruby, Perl,...)

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- ⌘ Loosely Coupled Systems

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- ⌘ Big pipes
- ⌘ Polyglot (Erlang, Java, Ruby, Perl,...)
- ⌘ Loosely Coupled Systems
- ⌘ Multi-site / Multi-cluster

# The Infrastructure





My Vacation





(Actually, the day before)





*A small failure...*





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58672464	25468952654	76540215497	49758672464	25468952654	76540215497	49758672464	25468952654	76540215497
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01243424	55556523154	64031254596	97501243424	55556523154	64031254596	97501243424	55556523154	64031254596

SYSTEM FAILURE

The Horror! The Horror!



- ⌘ Big pipes
- ⌘ Polyglot (Erlang, Java, Ruby, Perl,...)
- ⌘ Loosely Coupled Systems
- ⌘ Multi-site / Multi-cluster

# The Infrastructure

- & Big pipes
- & Polyglot (Erlang, Java, Ruby, Perl,...)
- & **Loosely Coupled Systems**
- & Multi-site / Multi-cluster

# The Infrastructure



Why are my calls failing?





You better call me back!



I'm still p\*\*\*ed off!



A woman with dark hair, wearing a dark business suit, is shown from the chest up. She is holding a white corded telephone receiver to her ear with her left hand. Her right hand is raised to her forehead, with her index finger pointing upwards, suggesting a gesture of frustration or exasperation. Her facial expression is one of anger or annoyance, with her mouth slightly open as if she is shouting or speaking loudly. The background is dark and out of focus, with some blue and yellow light sources visible. The text "And you're stupid Apps don't work!" is overlaid on the lower half of the image in a white, serif font.

And you're stupid Apps  
don't work!



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97546567	52107905648	89780158595	45197546567	52107905648	89780158595	45197546567	52107905648	89780158595
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01243424	55556523154	64031254596	97501243424	55556523154	64031254596	97501243424	55556523154	64031254596

SYSTEM FAILURE

The Horror! The Horror!



Surely you Tested?



1000 year floods







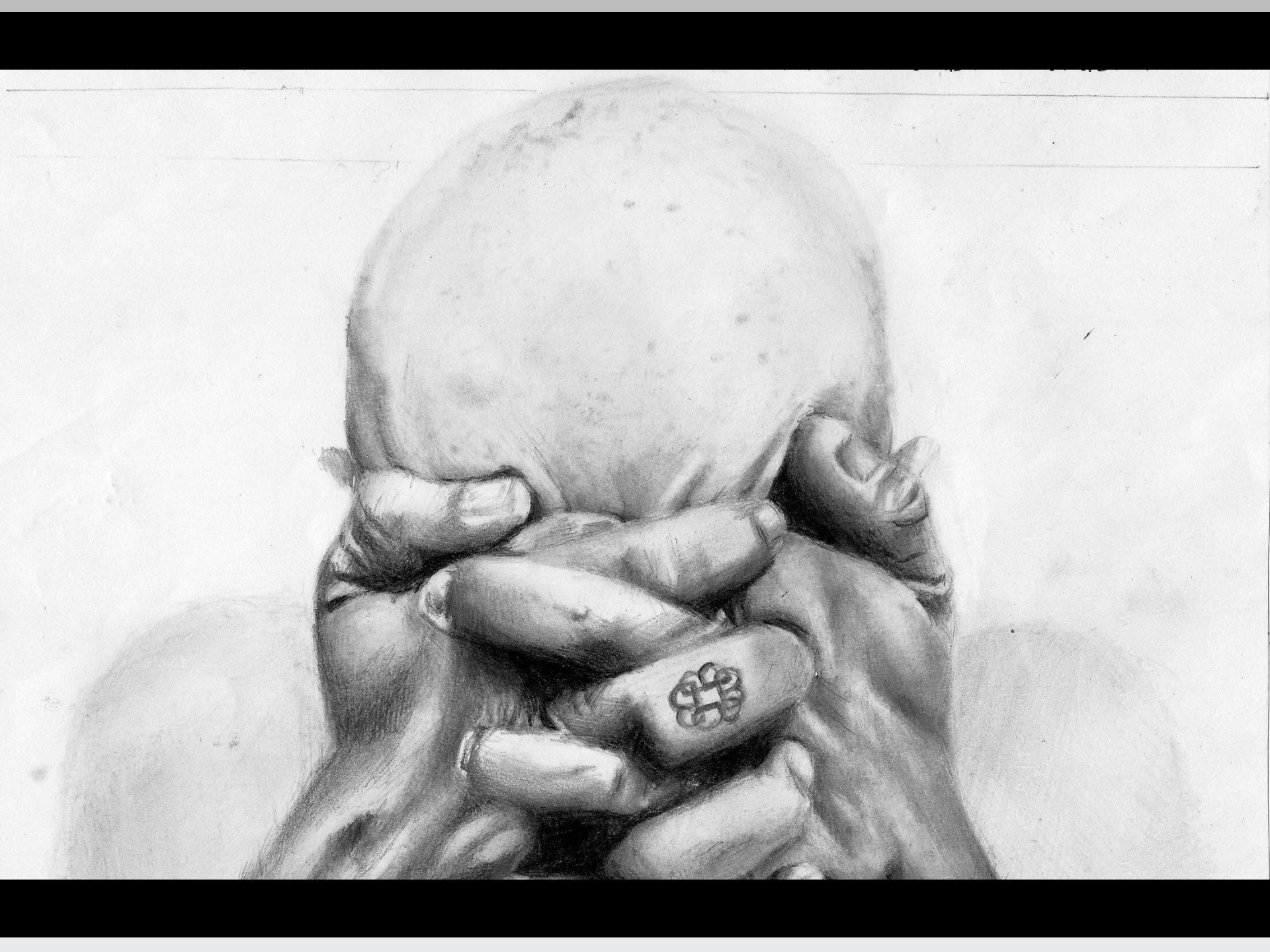
Barack Obama  
For  
President  
2008



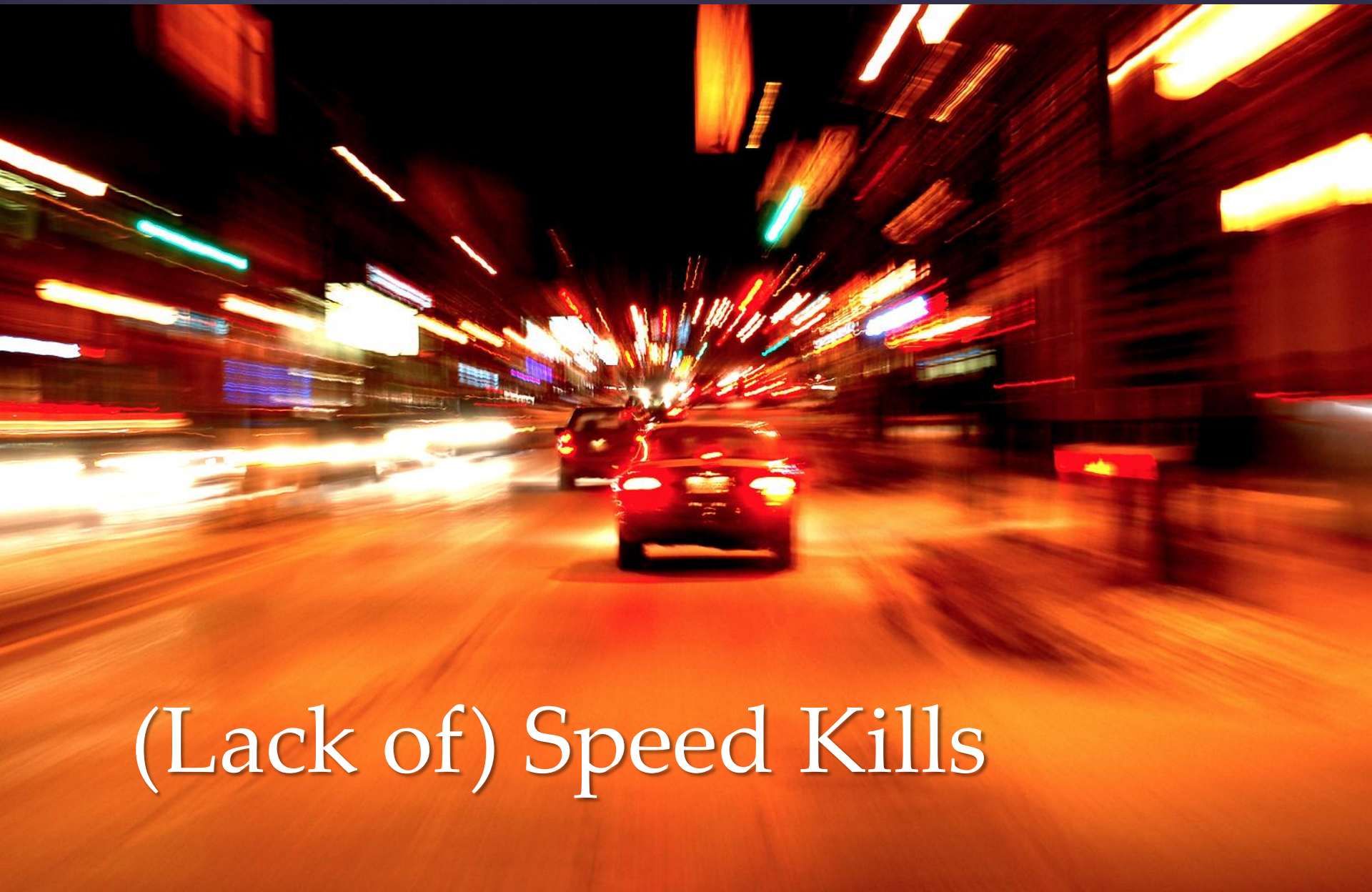


Romney 2012









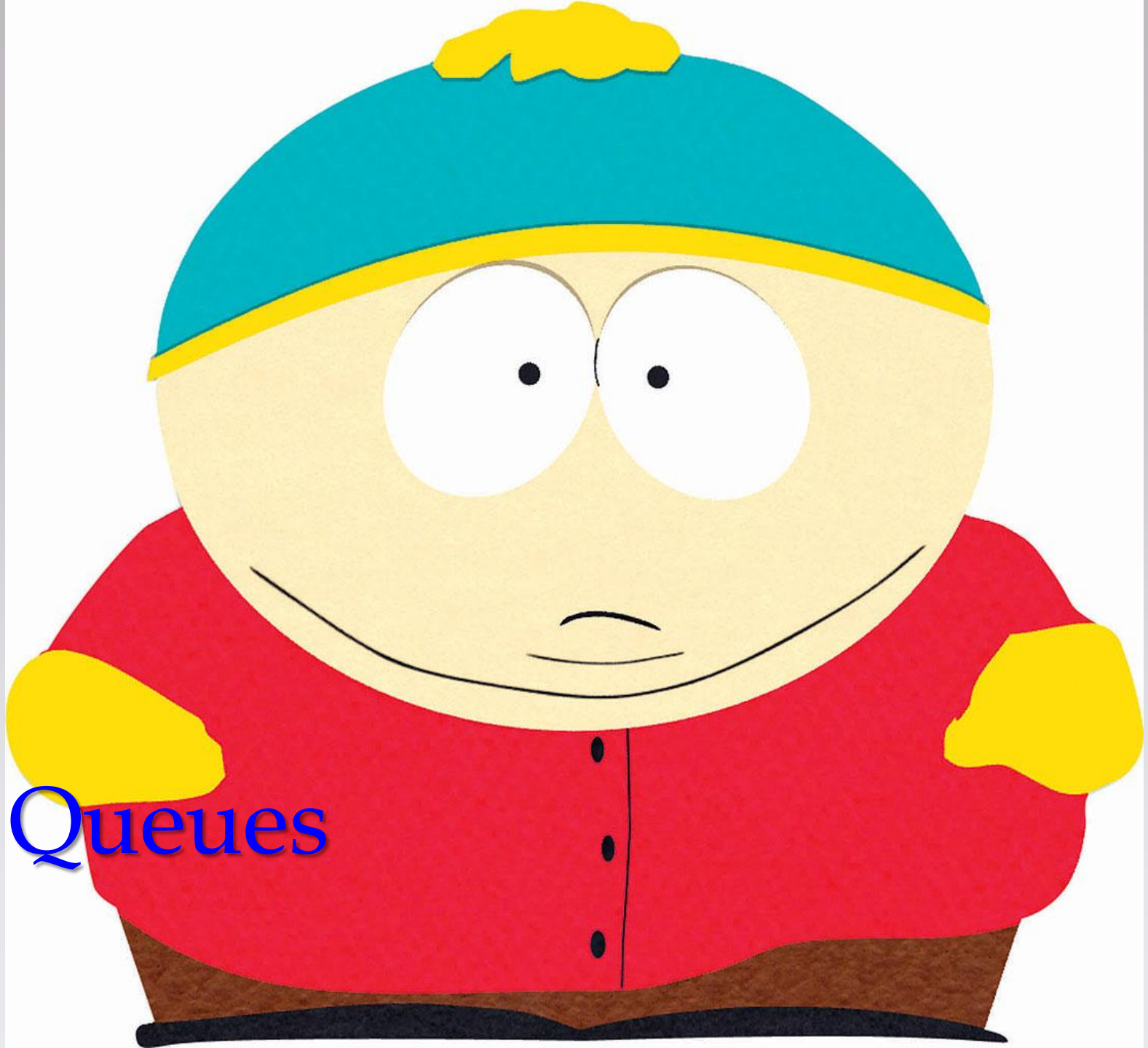
(Lack of) Speed Kills

# Queues



A long-exposure photograph of a busy city street at night. The image is characterized by significant motion blur, creating streaks of light from cars and buildings. The color palette is dominated by warm oranges and yellows from the streetlights, with some cooler blues and greens from distant lights. The perspective is looking down the center of the street, with cars visible in the distance and on the sides. The overall effect is one of a fast-paced, vibrant urban environment.

Queues



Queues





Queues





Queues

- ⌘ Can you recover quickly?
- ⌘ Buffer-bloat doesn't matter, right?
- ⌘ Once up, can you deal with the backlog?
- ⌘ Back-pressure isn't an issue, right?

# Queues



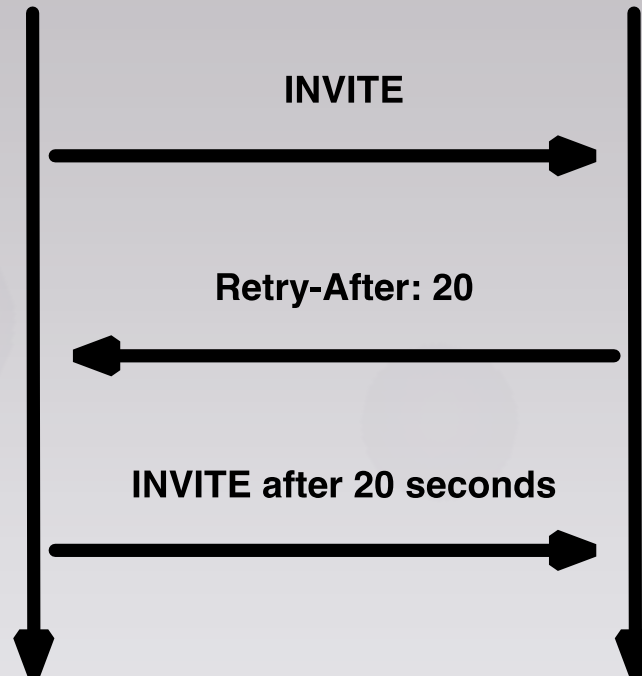
- ⌘ Can you recover quickly?
- ⌘ Buffer-bloat doesn't matter, right?
- ⌘ Once up, can you deal with the backlog?
- ⌘ Back-pressure isn't an issue, right?

# Queues



SIP CLIENT

SIP SERVER



Programmable



Please wait.  
We're processing your order request...



# Behavioral






















Self Managed





Queue Mgmt.



DEPARTURE	CARRIER - FLIGHT- PARTNER		GATE	TIME	STATUS
Detroit	 <b>UNITED</b>	UA 7982 US 7914	A2	4:45P	Now 6:25P
Detroit	 <b>DELTA</b>	DL 4089	B72	7:20P	On Time
Frankfurt	 <b>UNITED</b>	UA 916 LH 9051		5:15P	Canceled
Frankfurt	 <b>Lufthansa</b>	LH 419 UA 8826	B49	5:45P	Canceled
Frankfurt	 <b>Lufthansa</b>	LH 419. UA 8826	B51	5:45P	Canceled
Frankfurt	 <b>UNITED</b>	UA 952 QR 5798		6:53P	Canceled
Geneva	 <b>UNITED</b>	UA 974 AC 5960		5:46P	Canceled
Greenville	 <b>UNITED</b>	UA 7185 QR 5661	A6	5:05P	Departed
Harrisburg PA	 <b>UNITED</b>	UA 7952 BD 4400	A4	5:05P	Now 6:24P
Hartford-BDL	 <b>UNITED</b>	UA 312 LH 9076	D23	5:15P	Boarding
Houston	 <b>UNITED</b>	UA 7595 US 7667	D6	5:18P	Boarding
Indianapolis	 <b>SOUTHWEST</b>	WN 913	B48	7:25P	Now 7:30P
Jeddah	 <b>SOUTH AFRICAN</b>	SA 208 UA 9818	A14	5:40P	On Time
Johannesburg	 <b>UNITED</b>	UA 7821	A5	5:27P	On Time
Johnstown, PA	 <b>DELTA</b>	DL 6119			On Time
Kansas City					

*Active Queue Mgmt.*







Tail Drop

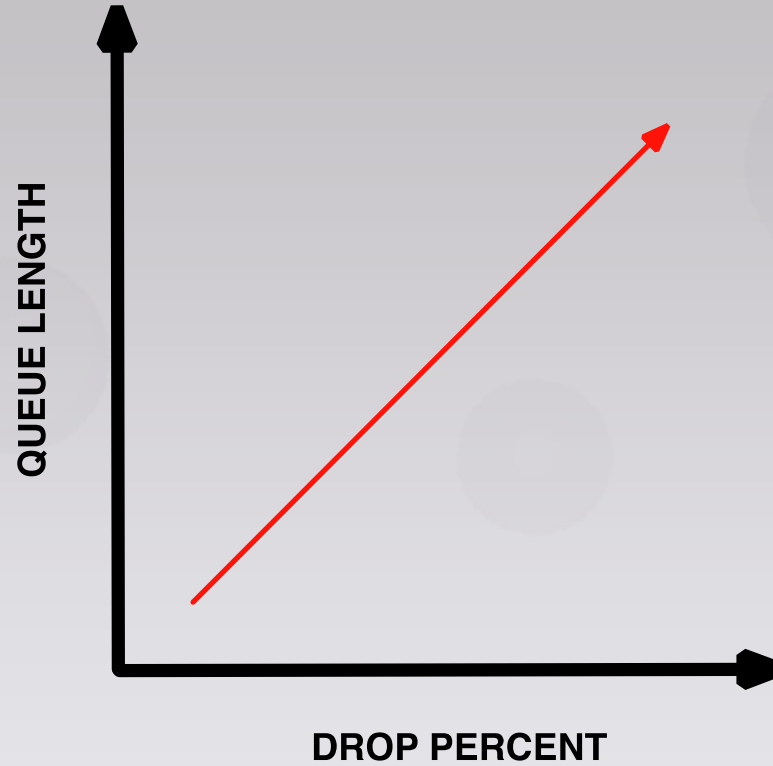


A black and white portrait of a middle-aged man with dark hair, looking directly at the camera. He is wearing a striped shirt. The image is framed by a light gray border.

God

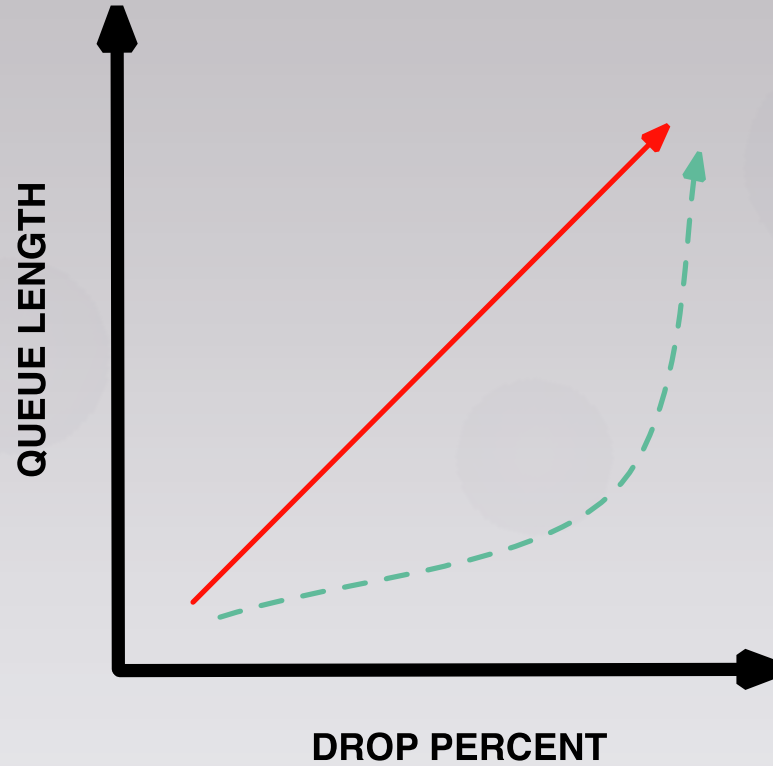
(category – TCP/IP)

RED





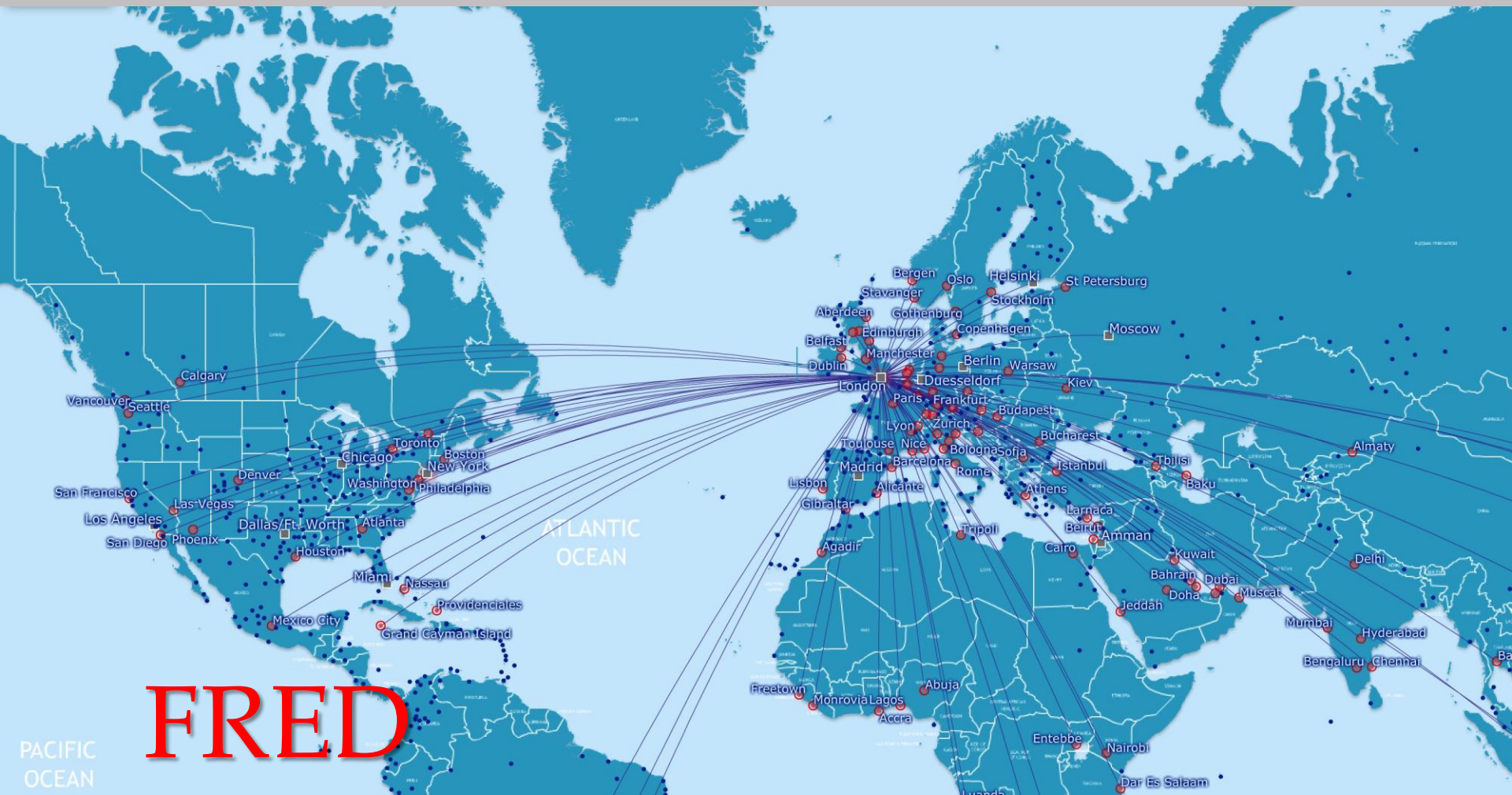
RED





# Newark Airport











- ⌘ SRED
- ⌘ RRED
- ⌘ ARED (and Blue!)
- ⌘ CHOKE

RED – Many many more



& CoDel

# Special Mention

What about Testing?





What about Testing?

& Black swans will occur. Oh Yes

# Bottom Line

- ⌘ Black swans will occur. Oh Yes
- ⌘ You can only improve what you control

# Bottom Line



- ⌘ Black swans will occur. Oh Yes
- ⌘ You can only improve what you control
- ⌘ Your business will define your discards

# Bottom Line

- ⌘ Black swans will occur. Oh Yes
- ⌘ You can only improve what you control
- ⌘ Your business will define your discards
- ⌘ Agility is (always) your friend

# Bottom Line



You, apparently, forgot  
about me



& Free calling

# The Fix



- & Free calling
- & No VM

# The Fix



- & Free calling
- & No VM
- & No reporting

# The Fix





- & Free calling
- & No VM
- & No reporting
- & Reject (most) APIs

# The Fix



A close-up portrait of a woman with a pale, white-painted face. She has dramatic black eye makeup that extends upwards and outwards from her eyes, which are a striking red color. She is wearing a dark, ornate crown with intricate designs and small, clear gemstones. Her lips are painted a deep, dark red. The background is a plain, light gray.

Beware the Black Swan