

14 Calm Years of PostgreSQL in Critical Messaging

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Consultant, American Messaging, 2006-now

Founder, SetSpace, Inc, 1998-now

About the Talk

This presentation is a case study of the evolution of PostgreSQL in the critical messaging business, starting with development at the year 2000 leading through production of three major applications up to the present.

Who Am I?

- Full Time Consultant with American Messaging
- Internet Engineering and Applications Group
- Coordinate Closely with Network Operations Group
- Working with Unix and Relational Databases since 1982

American Messaging - Lewisville, Texas, USA

The image shows the homepage of the American Messaging website. At the top left is the company logo with the tagline "The Dependable Choice". The top navigation bar includes links for Home, Secure Messaging, Traditional Paging, Campus Solutions, Support, About Us, a search icon, a "Send Message" button, and a "Log In" button. The main background image depicts three medical professionals in scrubs and masks in an operating room, with a patient lying in a hospital bed. A handheld communication device is held in the center foreground, displaying a message: "25: 5/10/13 3:28P CODE BLUE trauma report to ER stat". Below this image, the text "Serving Over 1000 Major Hospital and Medical Accounts Nationwide" is displayed. The bottom right corner features the American Messaging logo again.

American Messaging
The Dependable Choice

Home | Secure Messaging | Traditional Paging | Campus Solutions | Support | About Us | Send Message | Log In

Serving Over 1000 Major Hospital and Medical Accounts Nationwide

American Messaging

What is Critical Messaging?

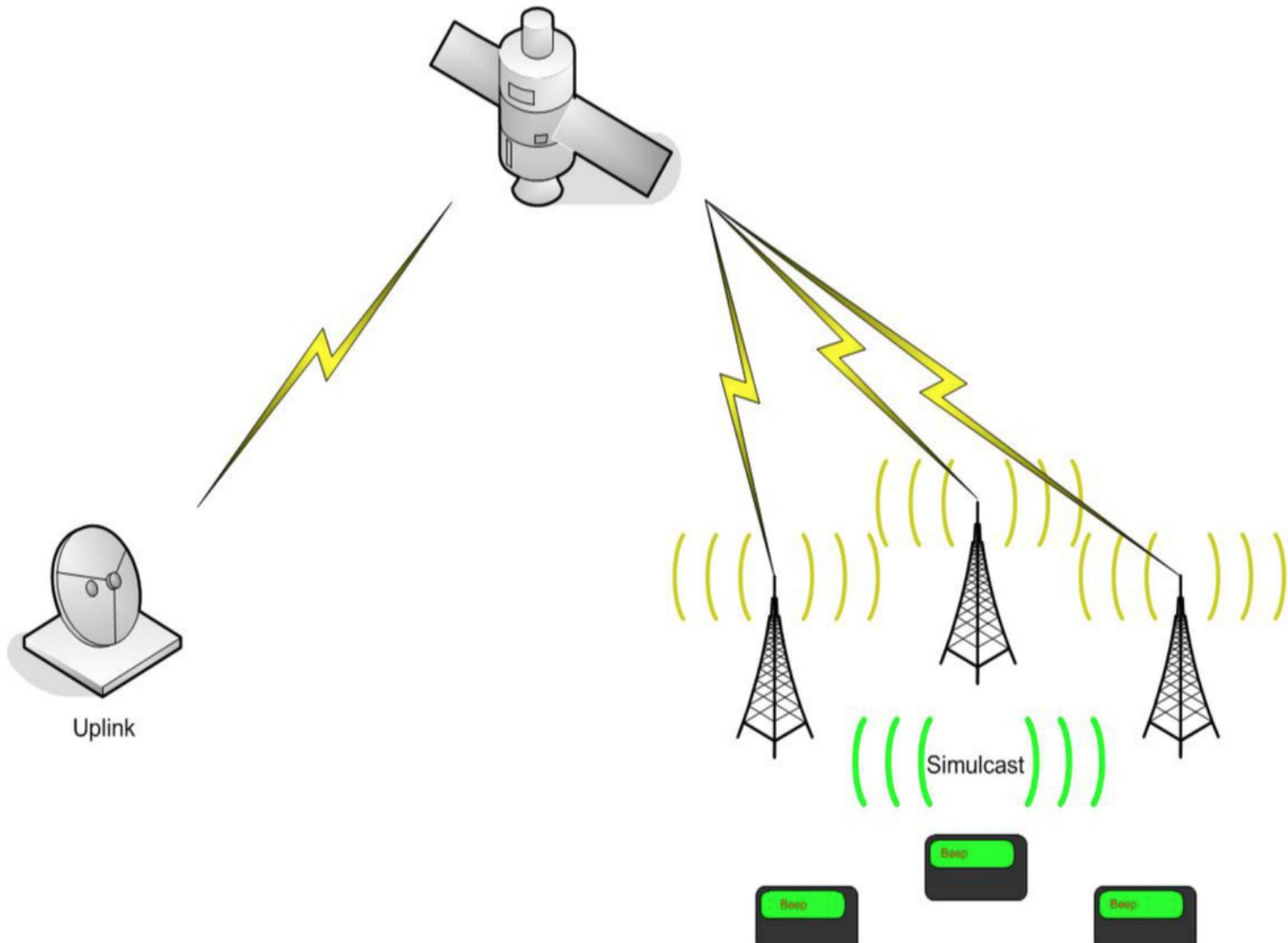


Colloquially Known as "Paging"

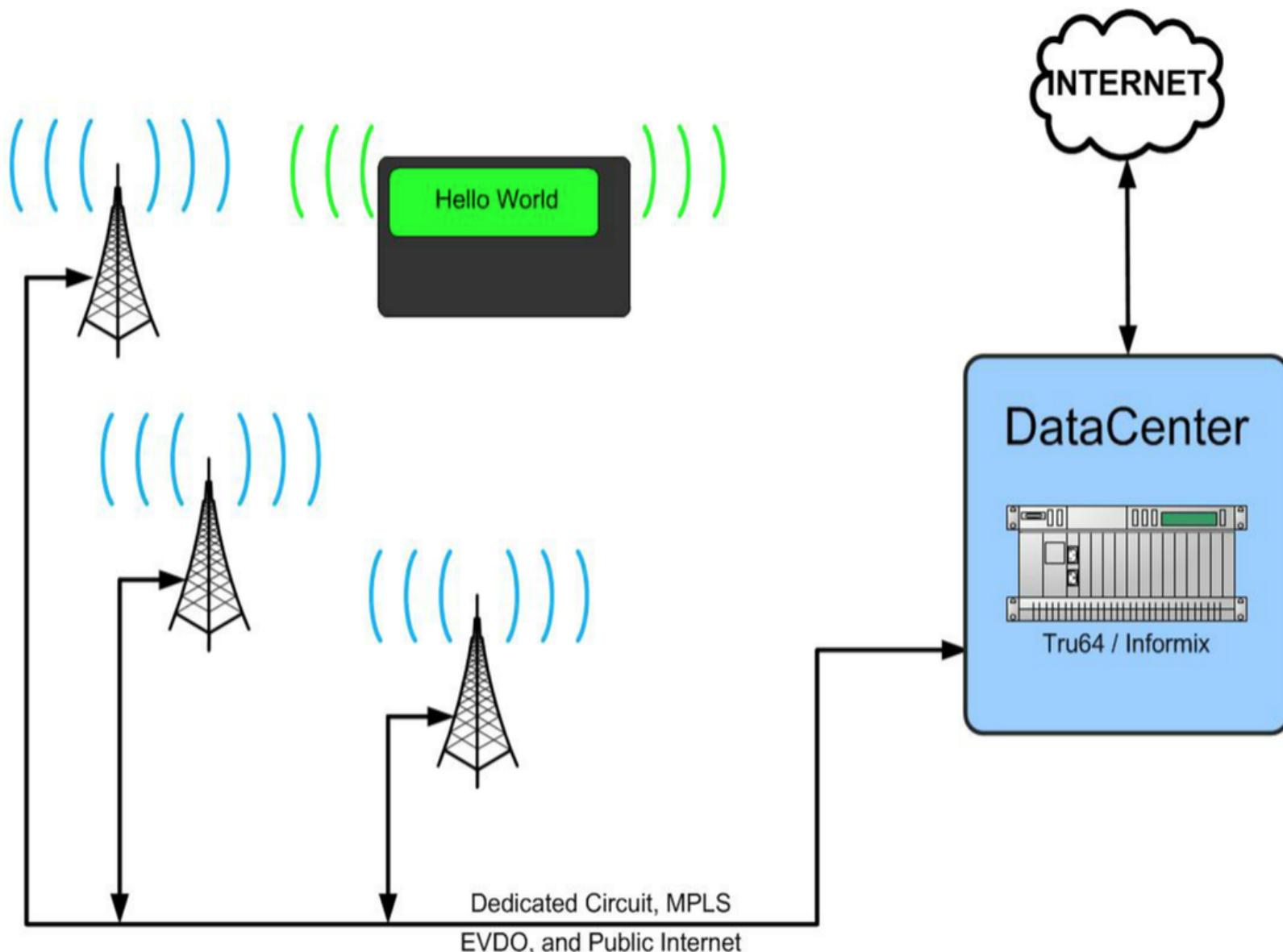
Who is American Messaging, Inc.

- Wireless Critical Messaging to Mobile and Telemetric Devices
- Second Largest Carrier in the United States
- RF Network Covers 98 of Top 100 Metropolitan Areas in all 50 States
- Private Merger of Many Legacy Carriers
- Verizon Wireless Messaging, Skytel, Air Touch, SBC Paging, Network Service ...

One Way Satellite RF Network Overview



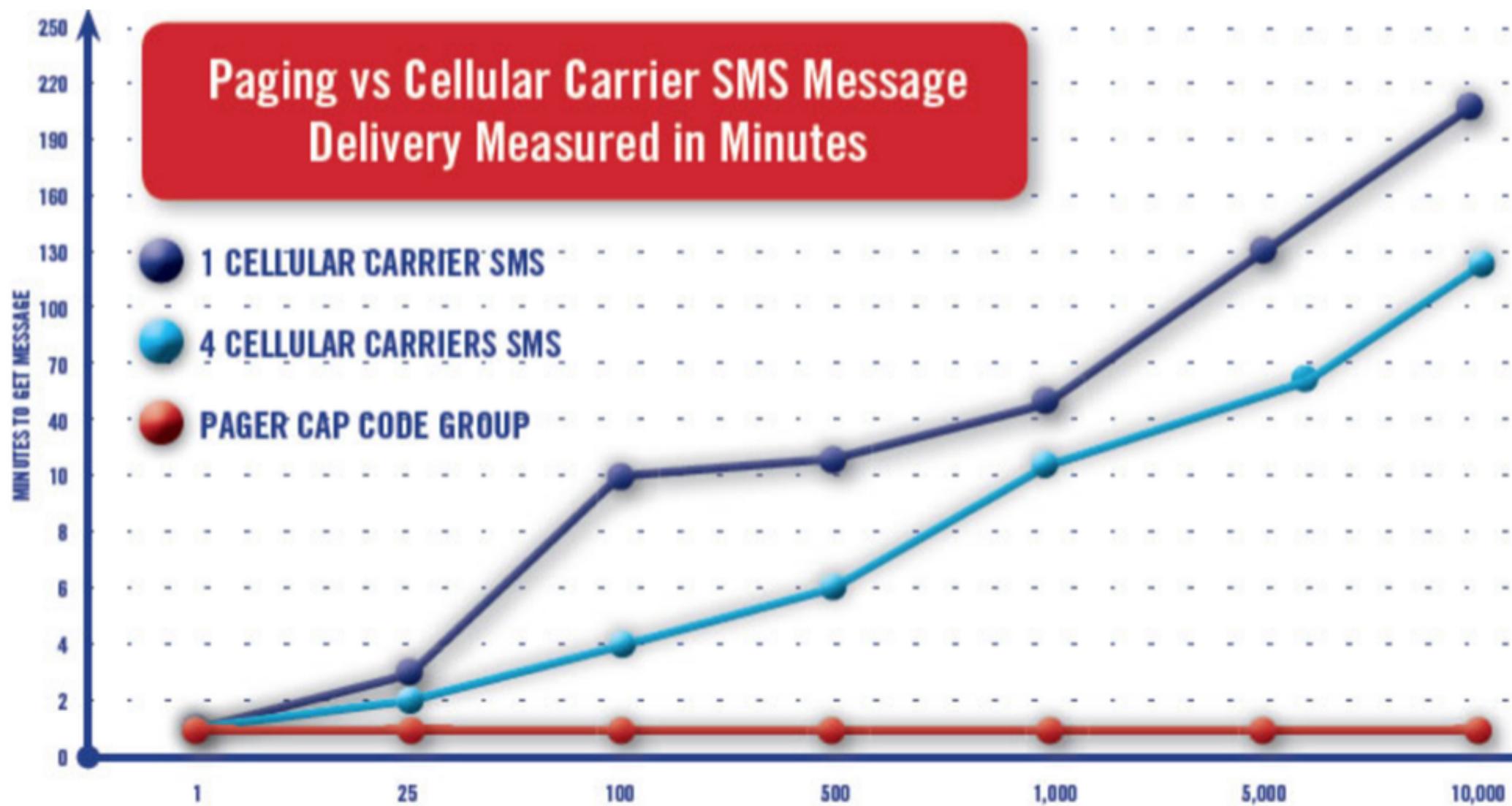
Two Way Satellite RF Network Overview



Customers of American Messaging

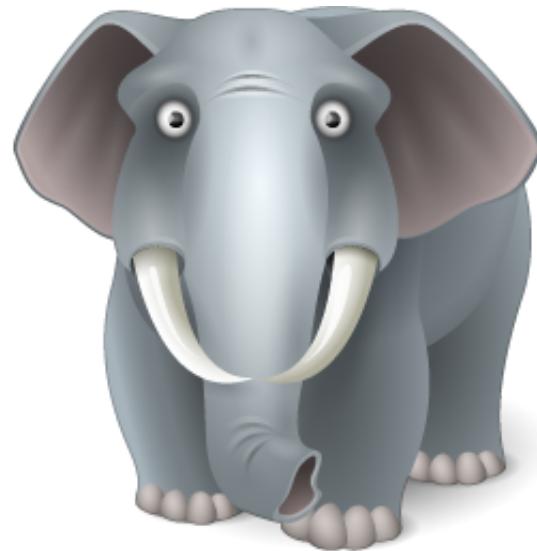
- Mobile Emergency First Responders
- Hospitals & Health Care
- Just in Time Inventory in Factory Control
- Remote Control Telemetry and Monitoring
- One Million Devices

Delivery Time of Paging Versus Cellular



History of PostgreSQL at AMS and Ancestral Companies

- PostgreSQL in Continuous Use Since 2001
- All Engineering Apps using PostgreSQL Still in Production
- Epitome of Profitable ROI



elephantsql.com

Three Major Applications of PostgreSQL

- 2001 to Now: Simple Message Dispatch: www.myairmail.com
- 2006 to Now: Intra Message Routing and Device Configuration
- 2009 to Now: 2Way RF Network Event Flow Monitoring by NOC

2001 to Now - www.myairmail.com

- Simple Message Dispatch via Web
- Typical Customer is Nursing Station or Small Fire Department
- Used Extensively During 911 Aftermath
- PostgreSQL Replaced Major DB Vendor
- 5-10K Logins/Day and Same Number Of Anonymous IP

2001 to Now - www.myairmail.com

The screenshot shows the 'Message Status' page of the MyAirMail website. At the top, there's a banner with the text 'Welcome To Message Manager' and the 'American Messaging' logo. On the left sidebar, there are links for 'Send a Message', 'Message Status', and 'Your Account'. Below these, a section titled 'Welcome to the new MyAirMail' is displayed, along with a note about rebranding. There are also buttons for visiting the website and logging into the account manager.

Message Status

Set Time Zone: US/Central

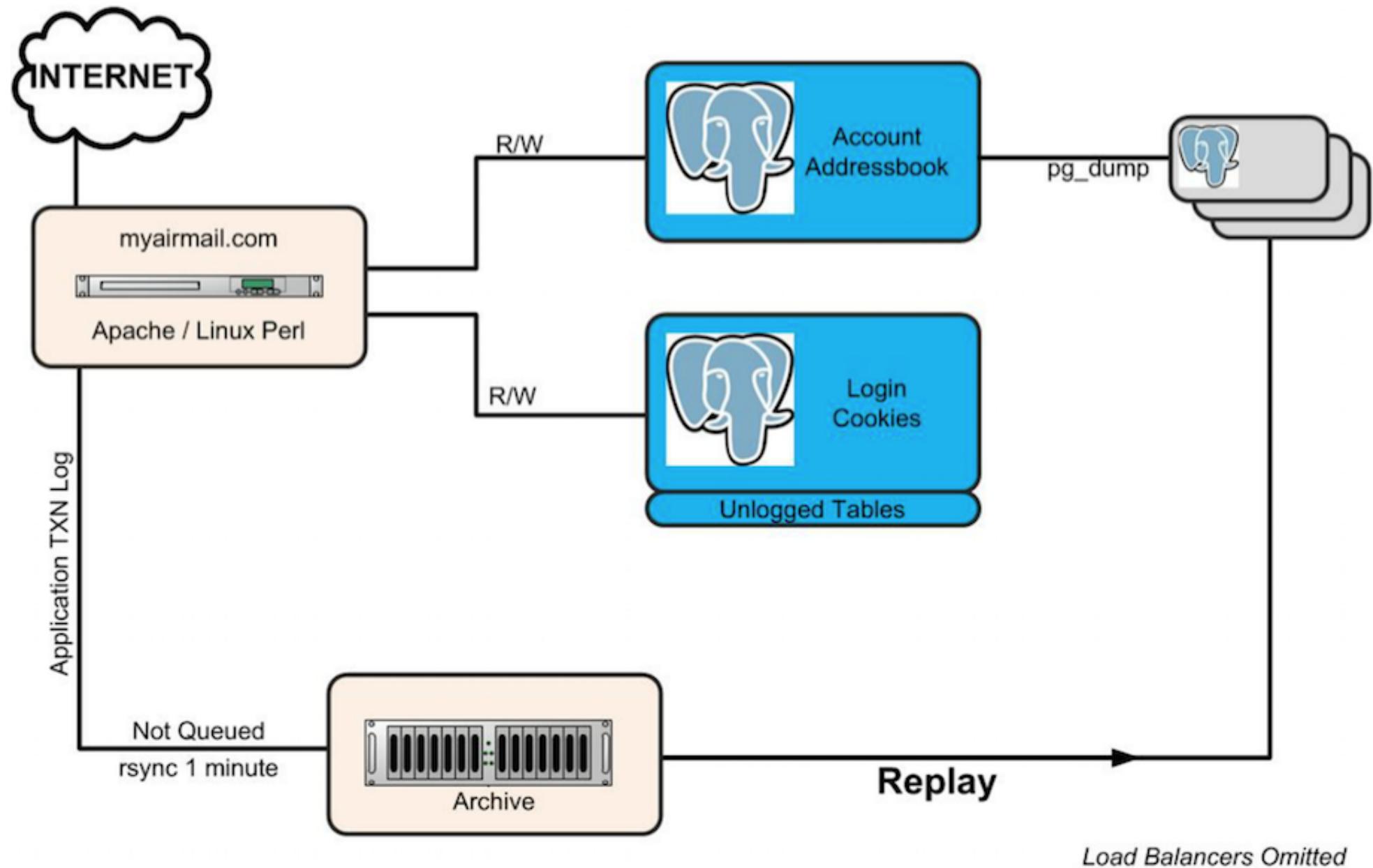
Sent At	Destination	QuickReply Capable	Tracking Number	Message Status
07:04 AM US/Central 05/24/2015	Code Blue Lewisville Branch 9726480002	No	1432469059	Message accepted
07:02 AM US/Central 05/24/2015	Dr Carmine Dioxide 9726482222	No	1432468969	Message accepted

Total of 2 messages.
All times shown are US/Central.

Pager Number: Tracking Number:

[Lookup the Status of Another Message](#)

Overview of www.myairmail.com Network



2006 to Now - Message Routing and Device Provisioning

- Absolutely Critical to Reliable Message Delivery
- All Forward Facing Network Protocols Query PostgreSQL
- Message Reply Histories
- Millions of Queries/Updates per Day
- Throttles Runaways/Missed Spam Messages

2006 to Now - Web Gui of Message Routing and Device Provisioning

Output Group Query

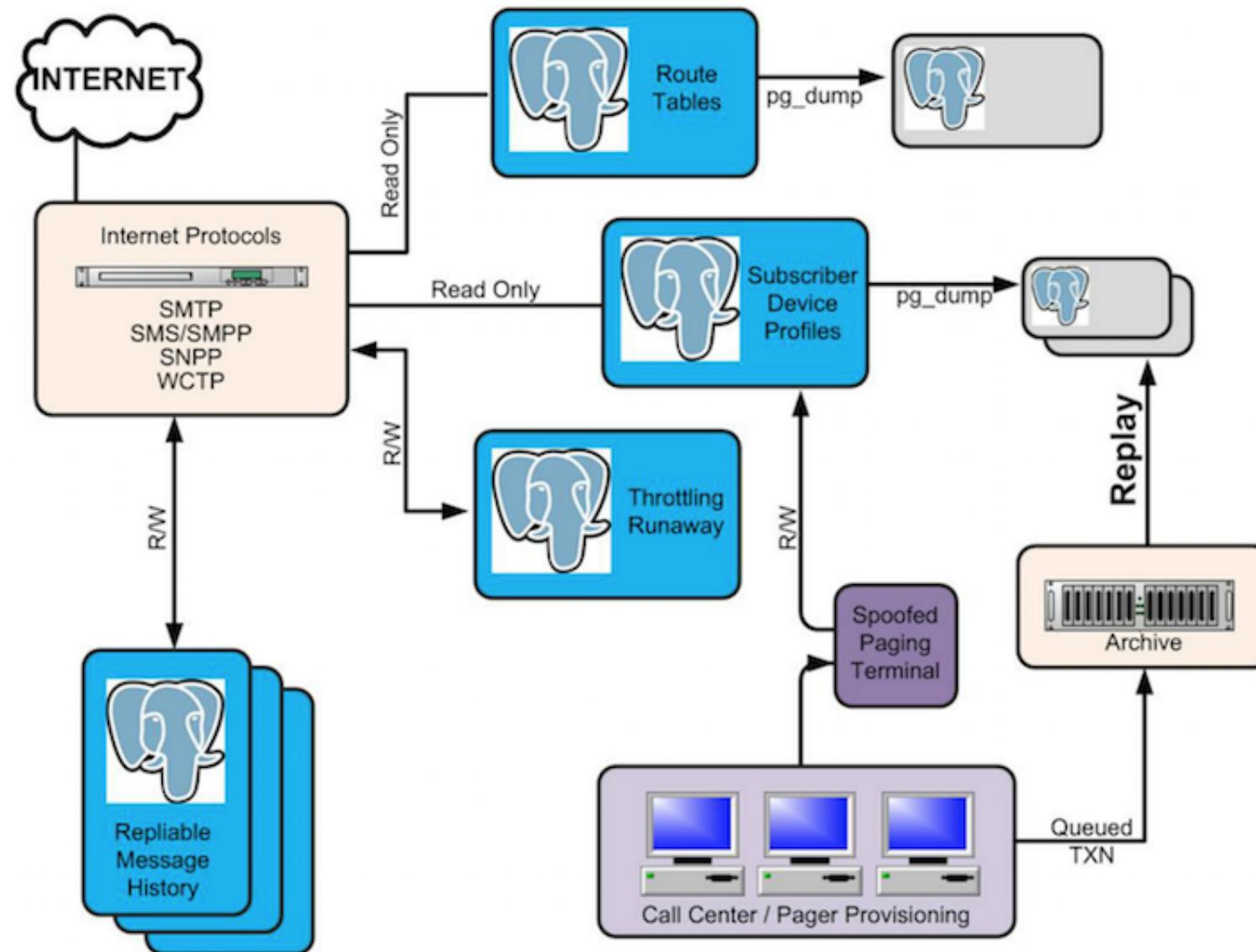
omeg29 - omegalx on 10.214.34.29

Output Group: Coverage Region 9463

Action	Group Number	Name				TwoWay	Output Rate									
Detail	9463	Coverage Region 9463				NO	0									
0 Paging Groups																
6 TNPP Routes in TNPP Group #9463																
Action	Route	Destination	Remap/New RF Channel	Remap/New RF Zone	Remap/New Inertia	Service	Remap/New Source	Remap/New Dest	Remap/New Priority	Group Seq #	Status					
Detail	#126	708D	YES / 58	YES / 63	NO / 5	#1: TNPP Port	NO	NO	NO / 0	126	1					
Detail	#128	6303	YES / 20	YES / 9	NO / 5	#1: TNPP Port	NO	NO	NO / 0	128	1					
Detail	#129	3170	YES / 20	YES / 9	NO / 5	#1: TNPP Port	NO	NO	NO / 0	129	1					
Detail	#177	222A	YES / 58	YES / 32	NO / 5	#1: TNPP Port	NO	NO	NO / 0	177	1					
Detail	#255: Dare B NTW 929.9375	222B	YES / 58	YES / 32	NO / 5	#1: TNPP Port	NO	NO	NO / 0	255	1					
Detail	#389: P94 NC/SC/MS/AL via Skytel	21AB	YES / 5	YES / 0	NO / 10	#1: TNPP Port	YES / BA12	NO	NO / 0	389	1					

[Home](#) [OmegaLX Database](#) [Etc](#)

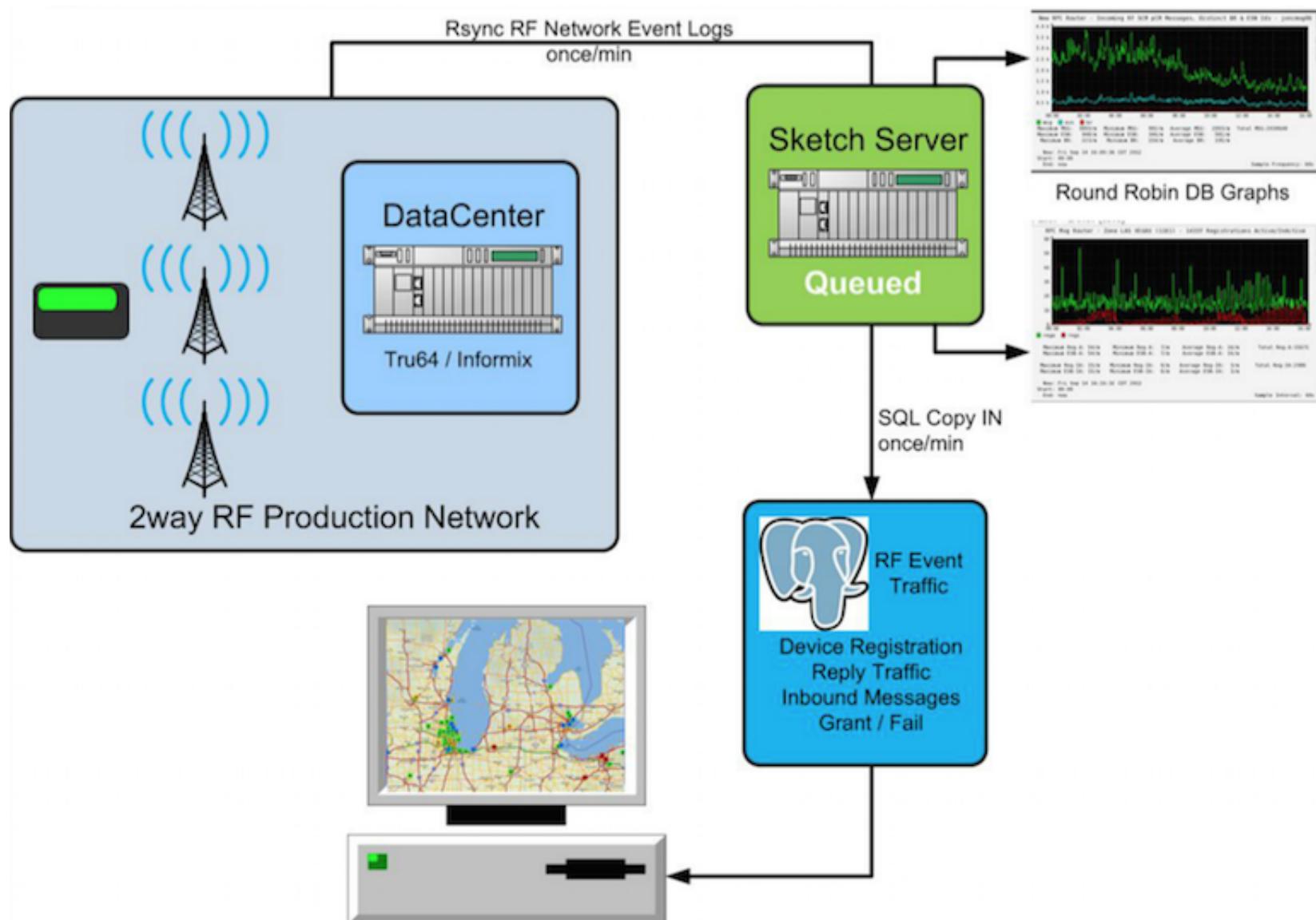
2006 to Now - Overview of Message Routing and Device Provisioning



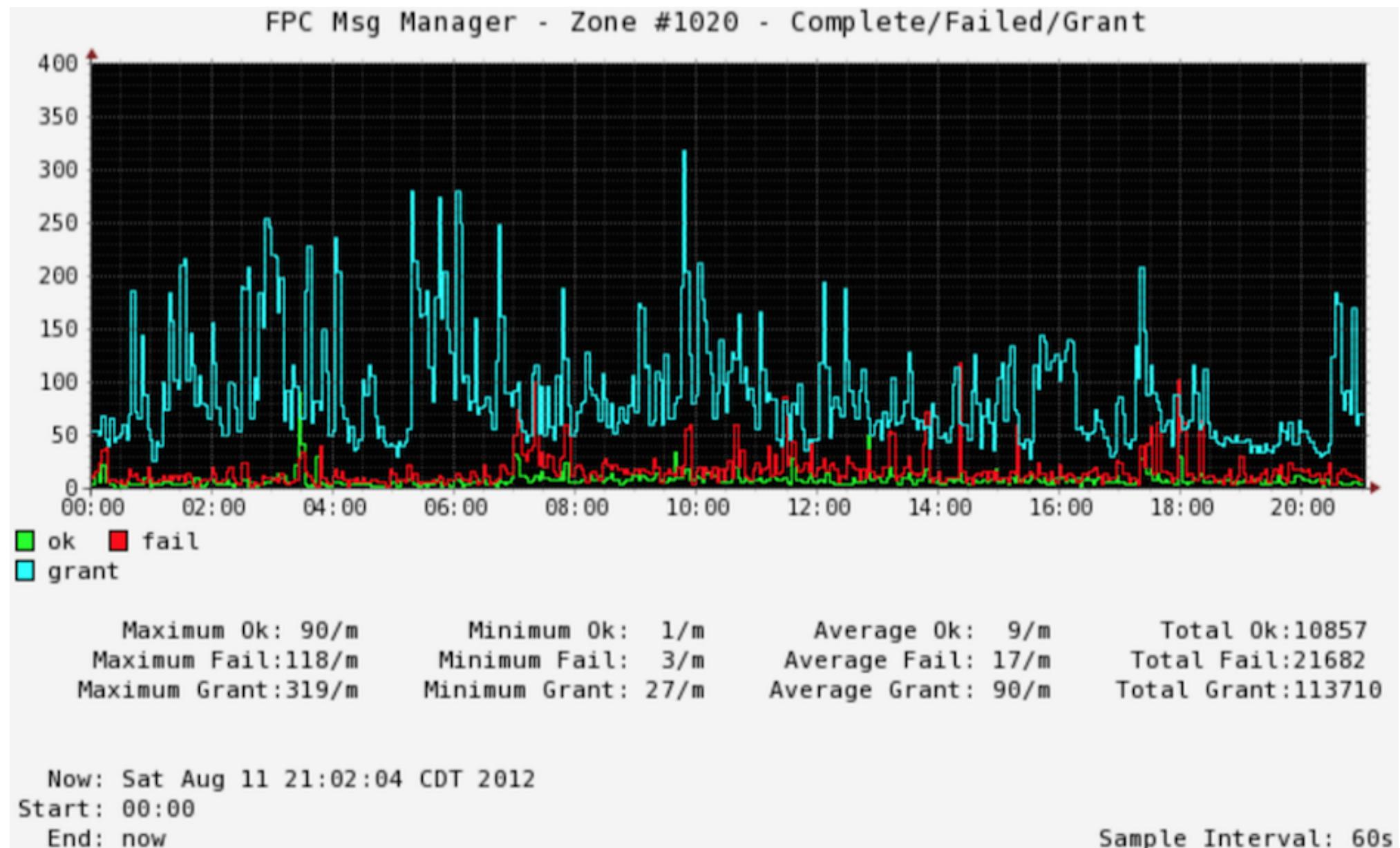
2009 to Now - 2Way Event Flow Monitoring - Skytel Network

- Raw Unsolidate RF Packets from Each Tower
- Unfied Message Assembly
- Device Location/Registration Responses
- No Message Bodies - HIPPA

2009 to Now - Overview of Skytel Network



2009 to Now - 2Way Event Flow Monitoring - Forward Path Reg



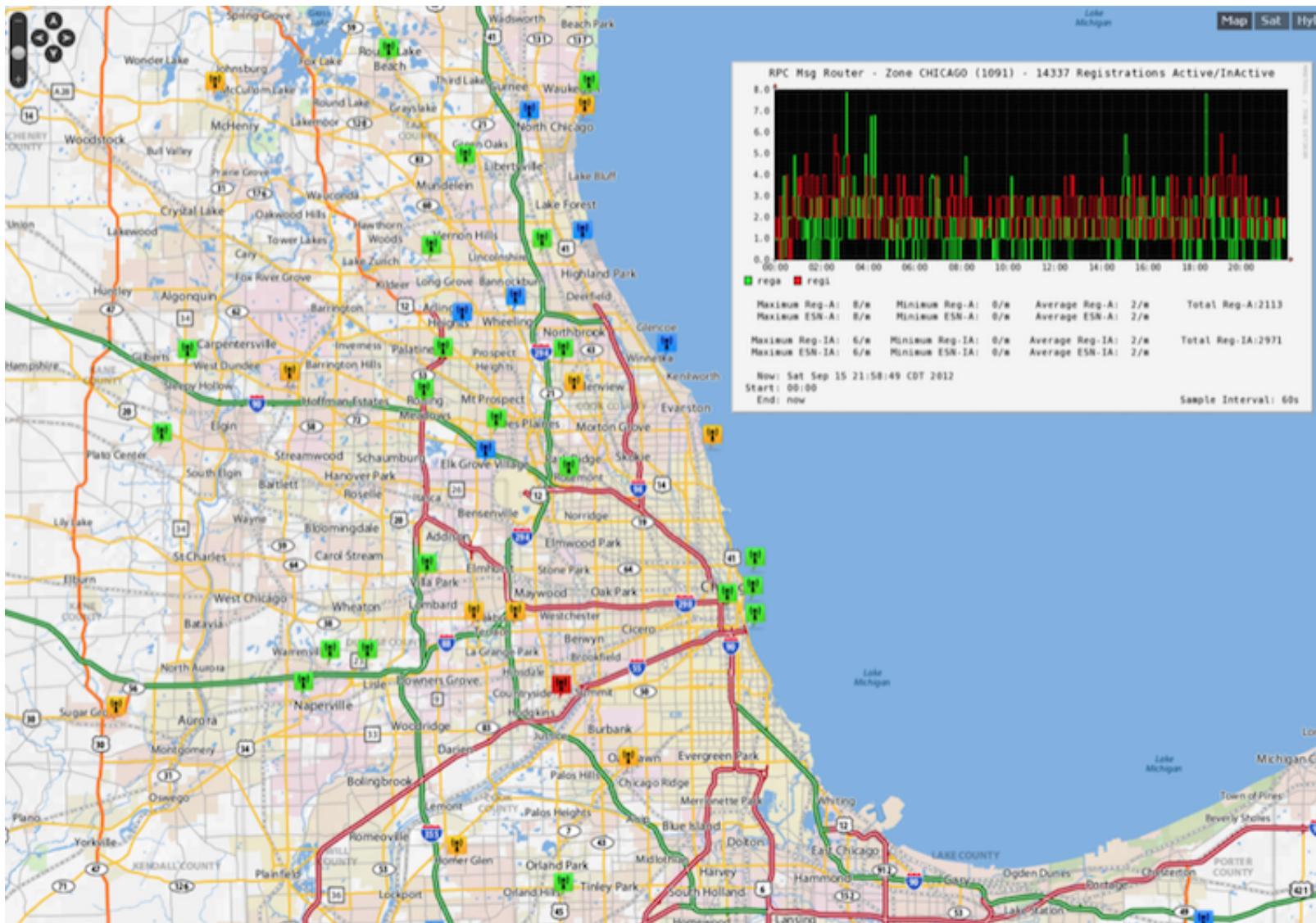
2009 to Now - 2Way Event Flow Monitoring

*select
all RF towers in Chicago
with devices re-registering
more than 10 times during last hour,
group by zone*



SQL Fantastic for NOC Personal - New View of Network Complexity

2009 to Now - PostgreSQL Aids Debugging of Complex Event Flow



[Jump to Big Picture with GeoQuery of Chicago](#)

2009 to Now - Stats on TwoWay Event PostgreSQL Database

- Event Tuple Volume Overwhelmed 9.0 Logged Tables
- Switched to CentOS 6 and PostgreSQL 9.1
- Unlogged Tables in 9.1 Made Huge Difference
- 100 Gigs of RAM Helps Too!

Thank you

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