

Large enterprise deployments with Asterisk clusters.

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The Asterisk and Nagios Professionals

Intuit tech– A swiss company in Malaysia

- Largest fully Asterisk focused company in Asia (maybe even globally 😊)
- Specialized in large, complex deployments as well a Asterisk core customization
- Implement and support asterisk projects globally
- Winner of Digium Big Business Award 2009



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Presentation Overview

- Is it possible to build and maintain large Asterisk based systems
- Why large organizations like Asterisk
- Why large organization don't like Asterisk
- Limitations of Trixbox, SwitchVox, FreePBX etc..
- Enterprise Architecture
- Sample Projects
 - VoIP solution for U.S. Army in Baghdad, Iraq
 - 1000 seat call-center for MAXIS (large Telco in Malaysia)

Why enterprises like Asterisk

- Inexpensive Deployment
- Reduced Maintenance cost
- Flexibility
- Richness of Features
- Easy to manage
- No license cost
- Stability
- It's openness, no need to say can not be done...

To be different, changing something !



Why some enterprises don't like Asterisk

- Afraid of the new
- Internal politics and standards
- Not “expensive” enough
- System Integrators experience / size
- Where is Asterisk heading
- Afraid of failing

CIO's prefer to fail with Cisco and not with Asterisk.... ! 😊



Limitations of Trixbox, SwitchVox, FreePBX etc..

- Bound to a specific OS (some of them not really scalable)
- Limited or non cluster capability
- To many gadgets functionality not suitable for large scale projects
- Dependent on relatively small, “proprietary” development teams
- Limited manageability of information over multiple servers

What do we need then?

**Plain vanilla asterisk with ARA (asterisk realtime architecture)
and custom code**

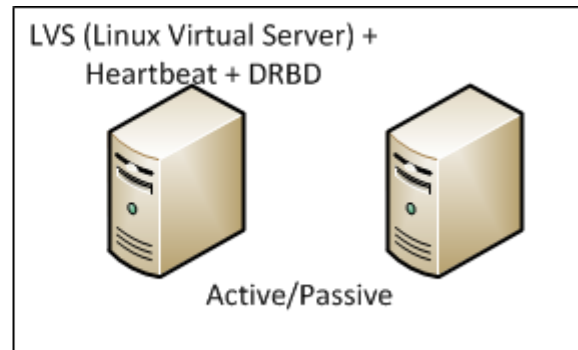
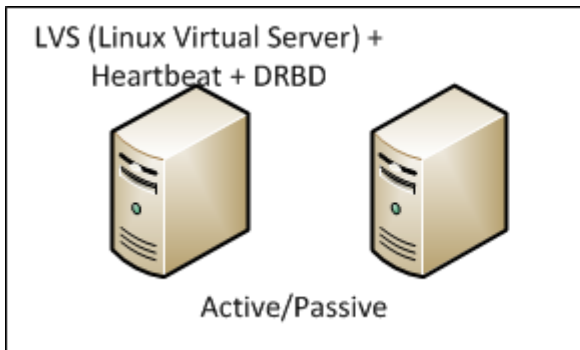
Enterprise Architecture

- Must be stable and rock solid
- Easy expandable
- Able to manage and maintain 10 or 100 thousands of accounts
- Carrier grade (SS7 etc....)
- Able to handle many thousands of concurrent call
- Fail over capabilities
- Running in multiple locations

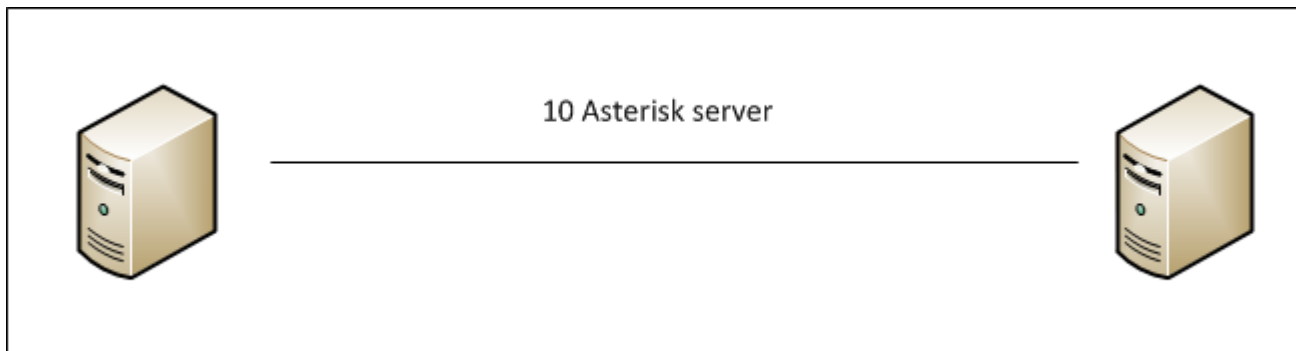
Enterprise Architecture



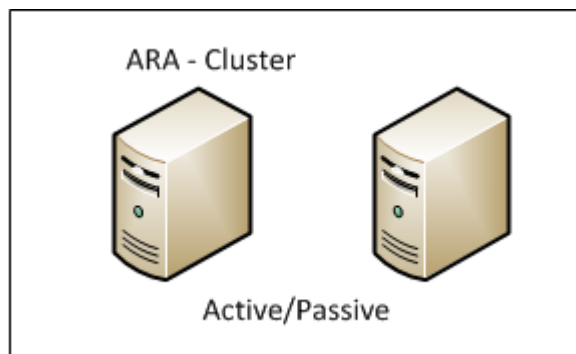
Distribute



Route / Process



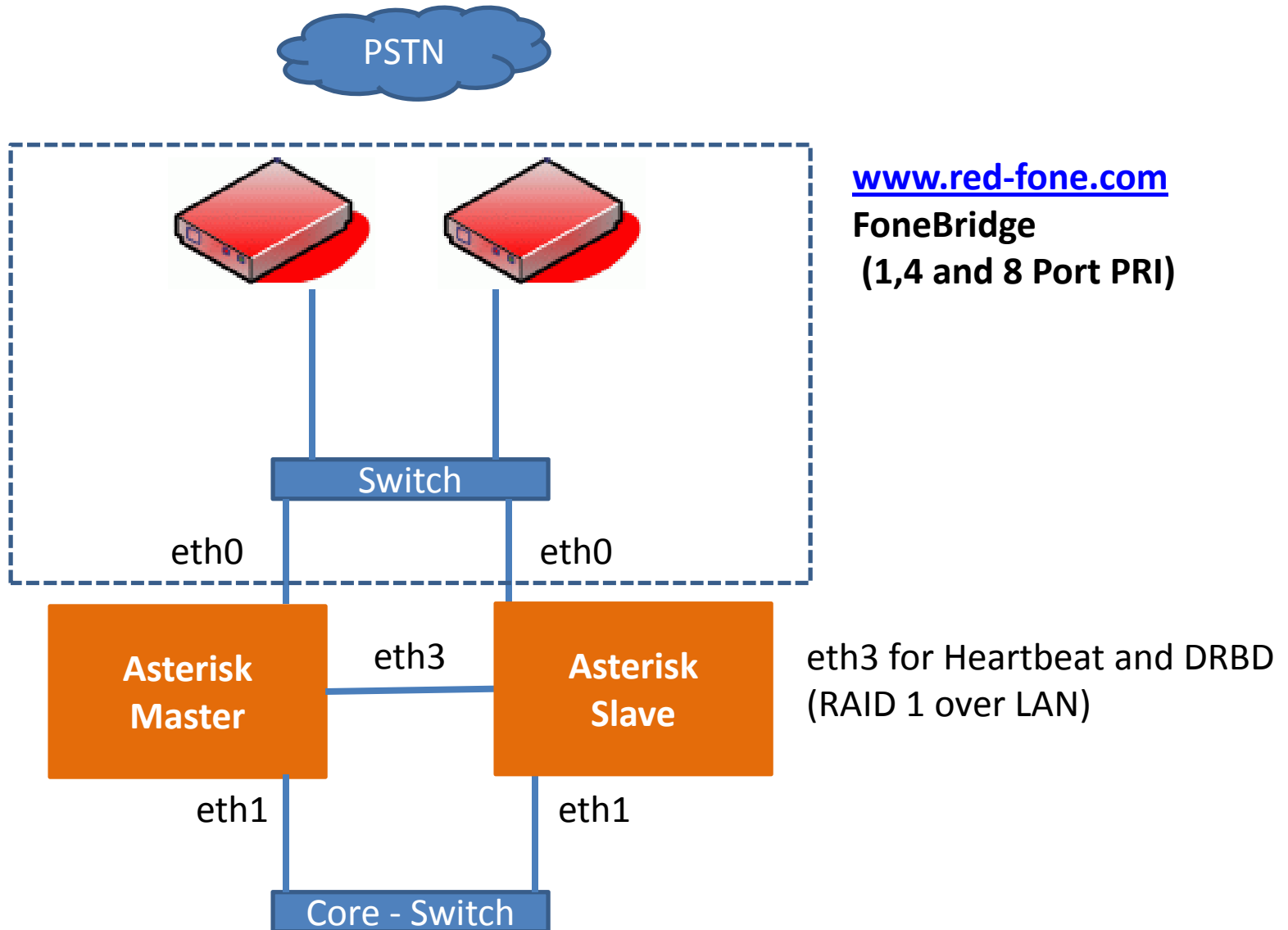
Logic



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Enterprise Architecture (PSTN – Connectivity)



Sample Projects



**VoIP solution for U.S. Army in
Baghdad, Iraq**

U.S. Army

- U.S. Army wants to bring down the cost of its communication infrastructure for soldiers.
- In the past soldiers had only access to AT&T phone center often miles away
- Soldiers need easy access to communication system and affordable rates to call home
- Take some business from AT&T and make some money.

What is the project all about?

The systems are installed at the Victory Base Complex surrounding Baghdad's International Airport.

Soldiers in this bases have access to the system:

Camp Cropper, Camp Dublin, Camp Liberty, Sather Air Base, Camp Slayer, Camp Striker, Camp Victory, Logistics Base Seitz, Victory Fuel Point



Challenges

- Technical
- Environment
- Communication and Culture

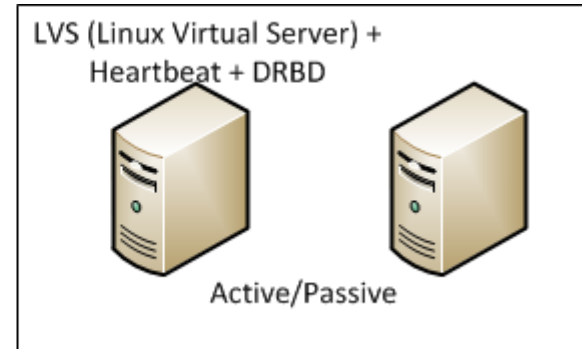
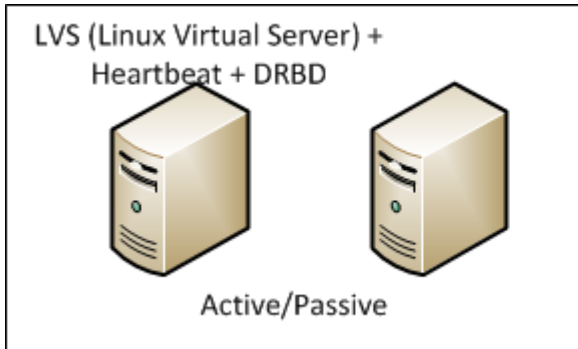
Challenges - Technical

- Distribute the load
- How to scale asterisk to handle 10'000 concurrent calls?
- “Real-Time-Billing” and least cost routing
- Instable Satellite-Links
- Maintain and Monitor

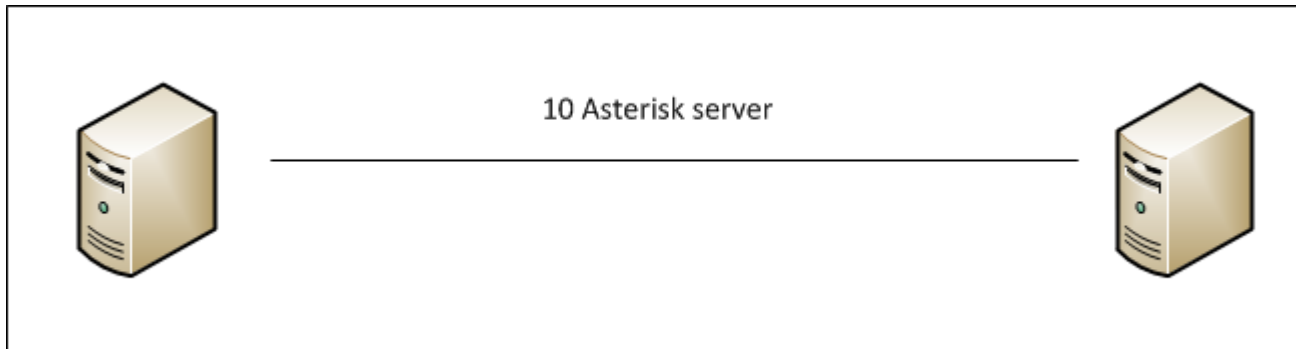
Challenges - Technical



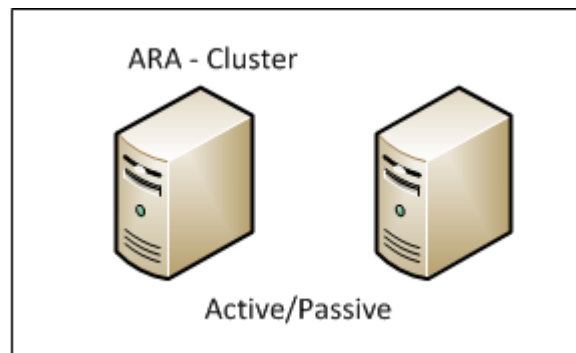
Distribute



Route / Process



Logic



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Challenges - Technical

- Write some custom LVS stuff to distribute load based on availability and least concurrent calls
- Use Nagios to monitor all aspects of the system inclusive satellite links and automatically switch routes based on estimated call quality (MOS)
- Write fast reliable billing module directly integrated into asterisk

Challenges - Environment

- It's a war zone
- Combat landing in a commercial air plane is no fun.
- Infrastructure (Power, Connectivity)
- Nights and day's of slow remote SSH work

Sample Projects

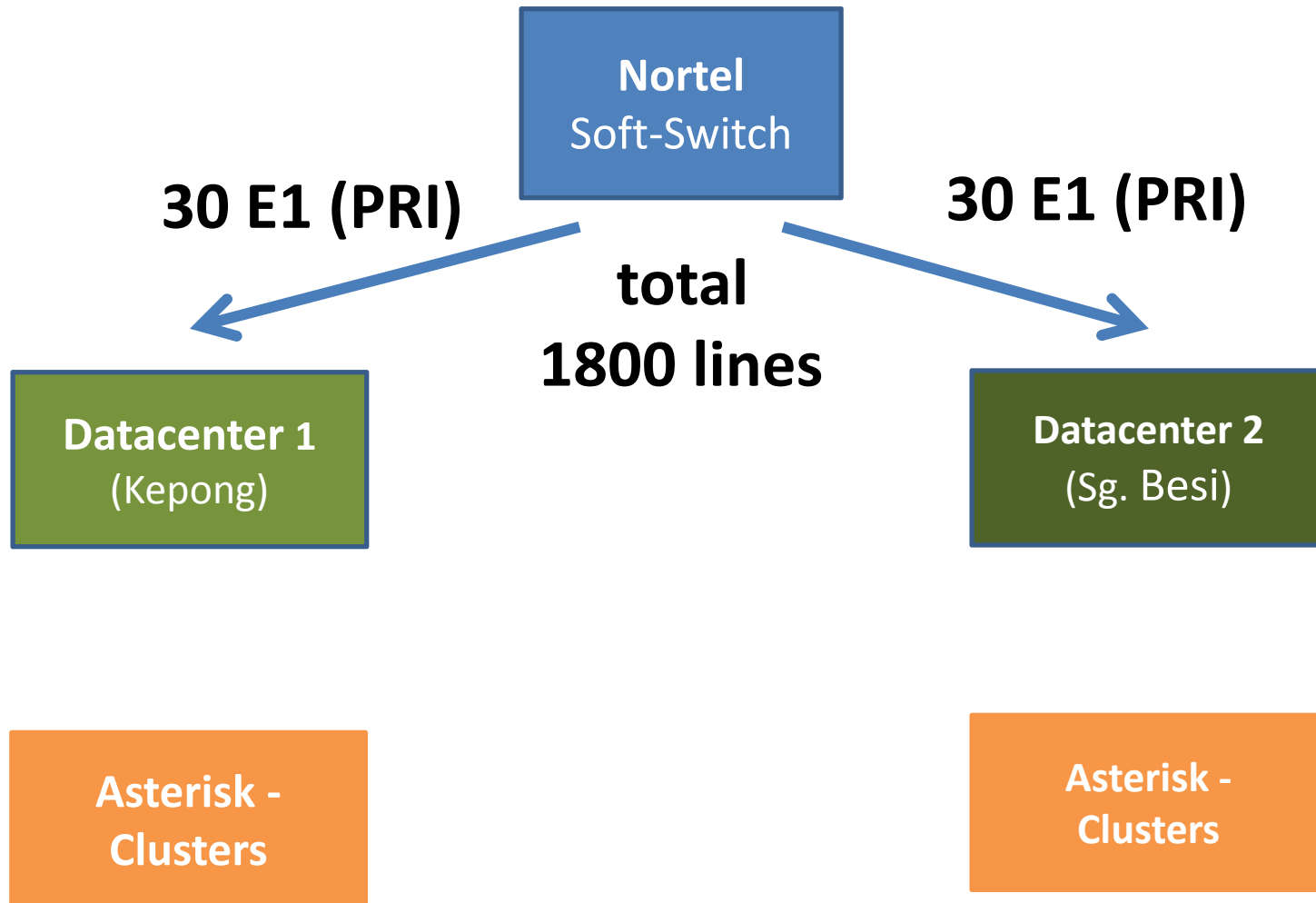
Maxis

**1000 seat call-center for MAXIS
(large Telco in Malaysia)**

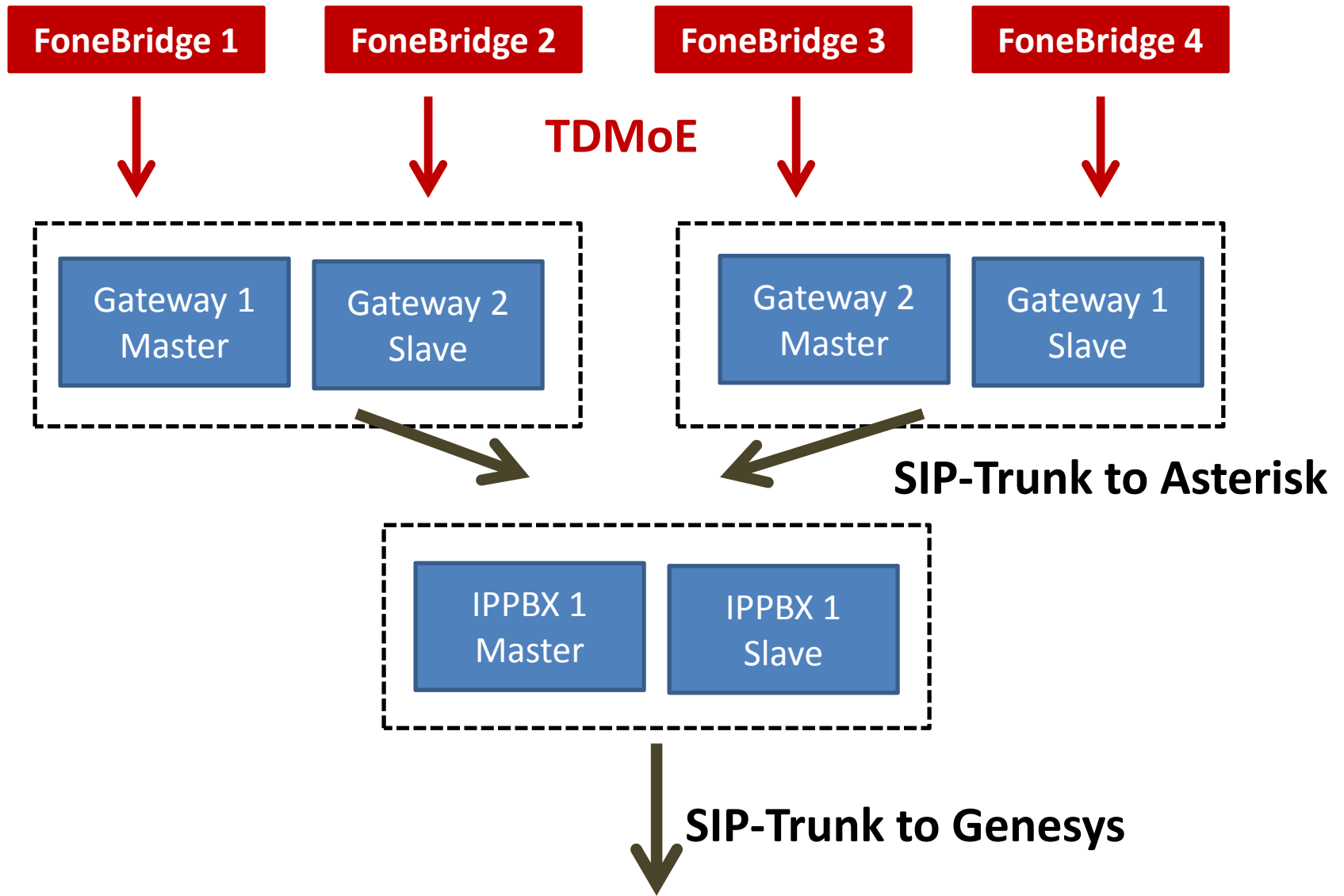
MAXIS – 1000 seat call center

- MAXIS needs to save cost and re-build current call center
- Must continuously evolve and provide new exciting services
- Nortel soft-switch CS2K is not SIP-enabled and cannot talk to Genesys
- Able to integrate into multiple backend system
- Run in two live datacenter at the same time (load balanced)

MAXIS – 1000 seat call center



MAXIS – 1000 seat call center



Thanks

Yes, it's definitely possible to build and maintain large Asterisk based systems !

Thanks

Thanks to all you guys out there making Asterisk possible..

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