



▶ ***OpenSIPS Config & Routing***

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Outline:

- Reference Diagram
- Proxy Server
- Routes and Direction

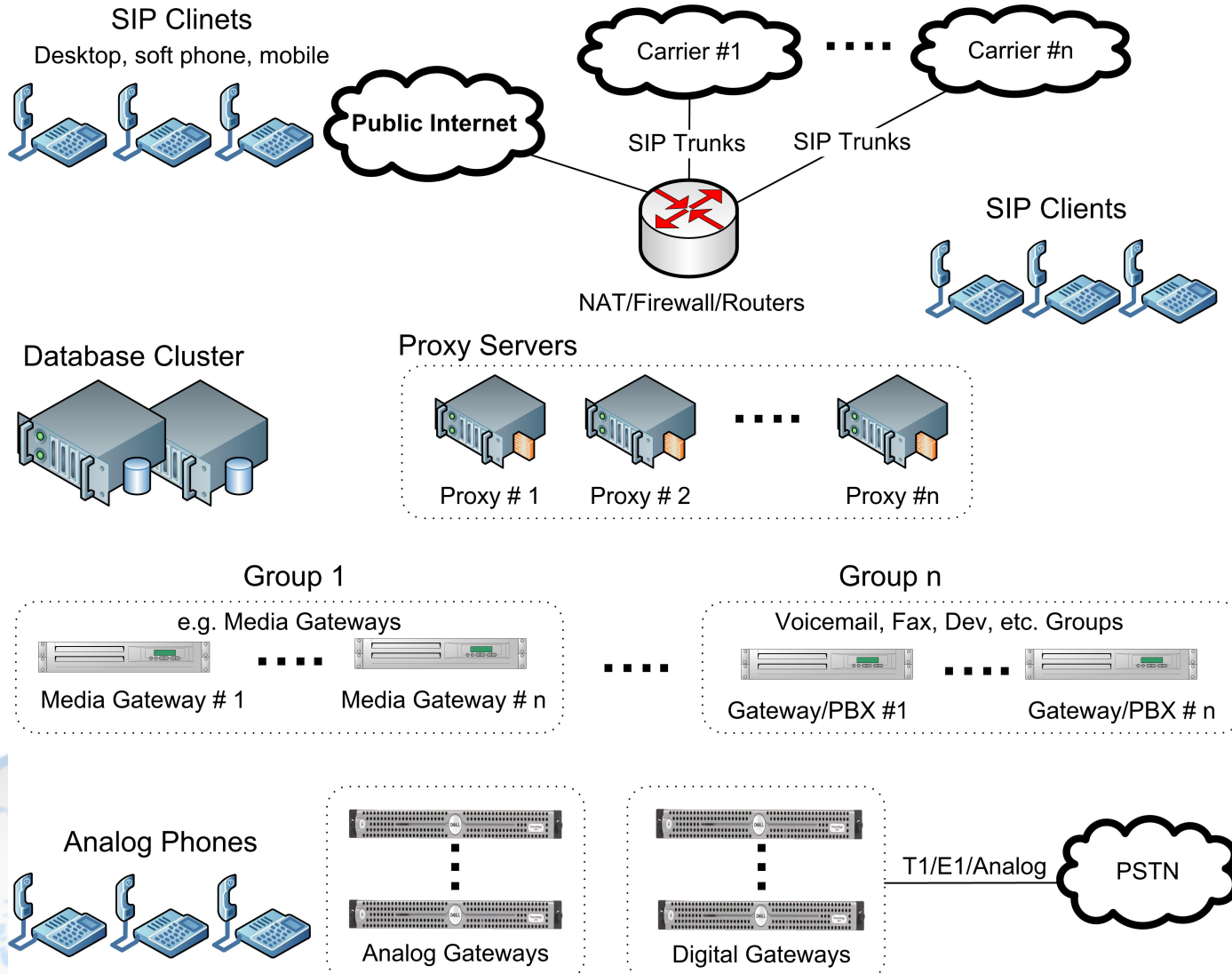
- NAT and Network Configuration
- Media/RTP Proxy
- Load balancing, Dynamic routing
- Redundancy and High Availability

- Question?





Reference Diagram





opensips.cfg

- Global Parameters
- fork
- listen IPs and mhomed
- Modules

- route{ }





Routing Logic

- SIP Requests vs Responses
- Direction?





Direction

```
$var(direction)="unknown";
# (Ali) - detect the direction of the request and set a script flag accordingly
if ( src_ip == 10.10.11.11 ){
    # From opensips server itself (Notify Reboot message)
    if( is_method("NOTIFY") ){
        xlog( "L_Info", "NOTIFY from OpenSIPS: src_ip=$src_ip\n");
        xlog( "L_Info", " O-NOTIFY from=$fu\n");
        xlog( "L_Info", " O-NOTIFY req uri=$ru\n");
    }
    route(10);
} else if ( src_ip == 10.10.11.12 || src_ip == 10.10.11.13 ){
    # From media servers
    $var(direction)="from_mg";
    setsflag(1);
    if ( has_body( "application/sdp" ) ) {
        fix_nated_sdp( "11", "204.1.7.4" );
    }
}
```





Direction Continued

```
} else if ( src_ip == 10.10.11.12 || src_ip == 10.10.11.13 ){
    # From media servers
    $var(direction)="from_mg";
    setsflag(1);
    if ( has_body( "application/sdp" ) ) {
        fix_nated_sdp( "11", "204.1.7.4" );
    }
    if( is_method("INVITE") ){
        xlog( "L_Info", "INVITE from MG: src_ip=$src_ip\n");
        xlog( "L_Info", " A-INVITE from=$fu\n");
        xlog( "L_Info", " A-INVITE req uri=$ru\n");
    } else {
        xlog( "L_Info", "$rm from MG: User:$fU\n");
    }
} else if ( src_ip == 10.10.11.100 ) {
    # From the IVR Server
    $var(direction)="from_ivr_voiceserver";
    setsflag(1);
```





Routes

1. route
2. branch_route
3. failure_route
4. onreply_route
5. error_route
6. local_route
7. startup_route
8. timer_route
9. event_route





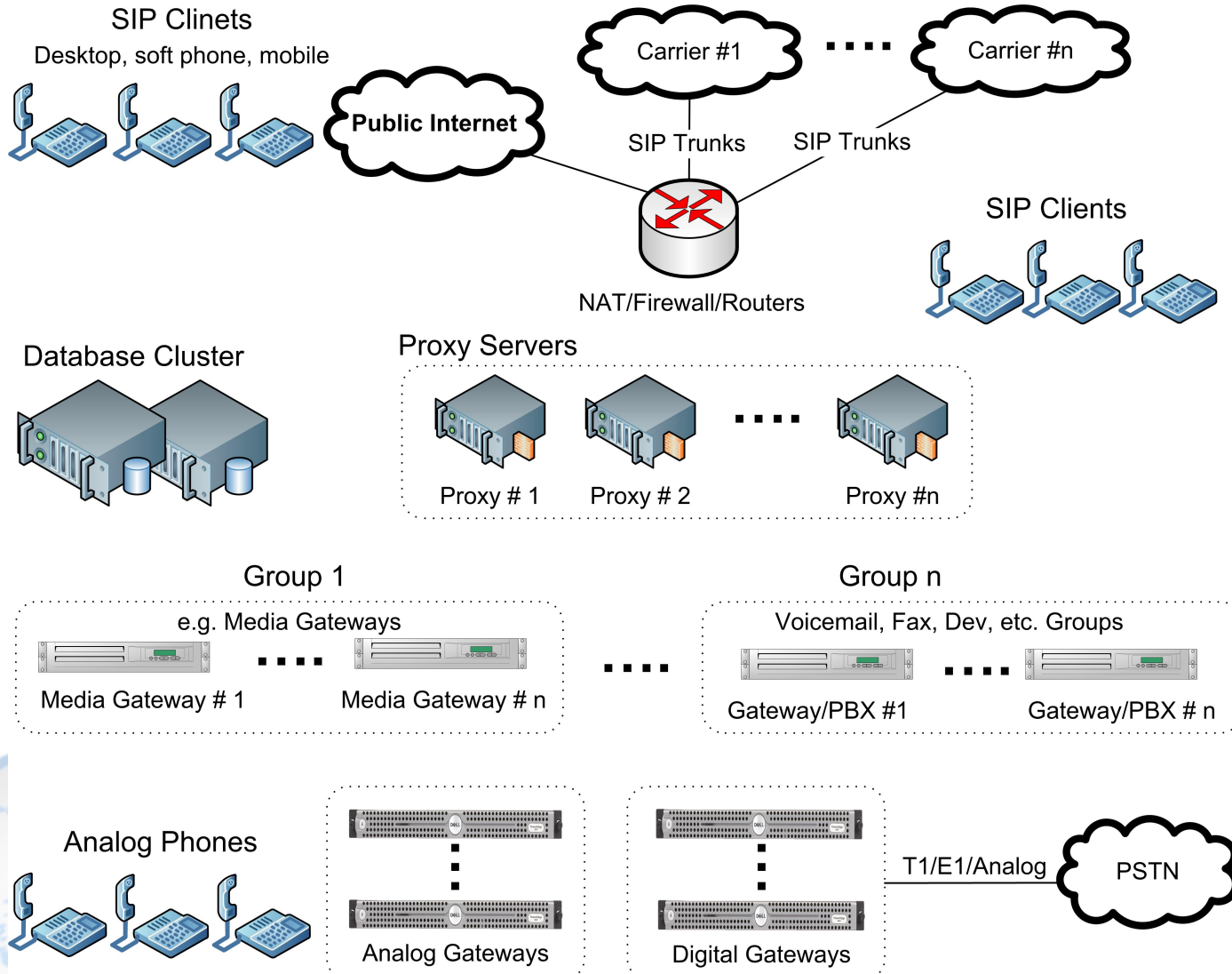
NAT and Network Configuration

- Using a Firewall
- NAT Detection
- SDP IP re-writes





Reference Diagram





RTPProxy

- Media Proxy (or Direct Media Path)
- offer, answer and engage
- rtp_proxy_set
- route, branch_route and failure_route





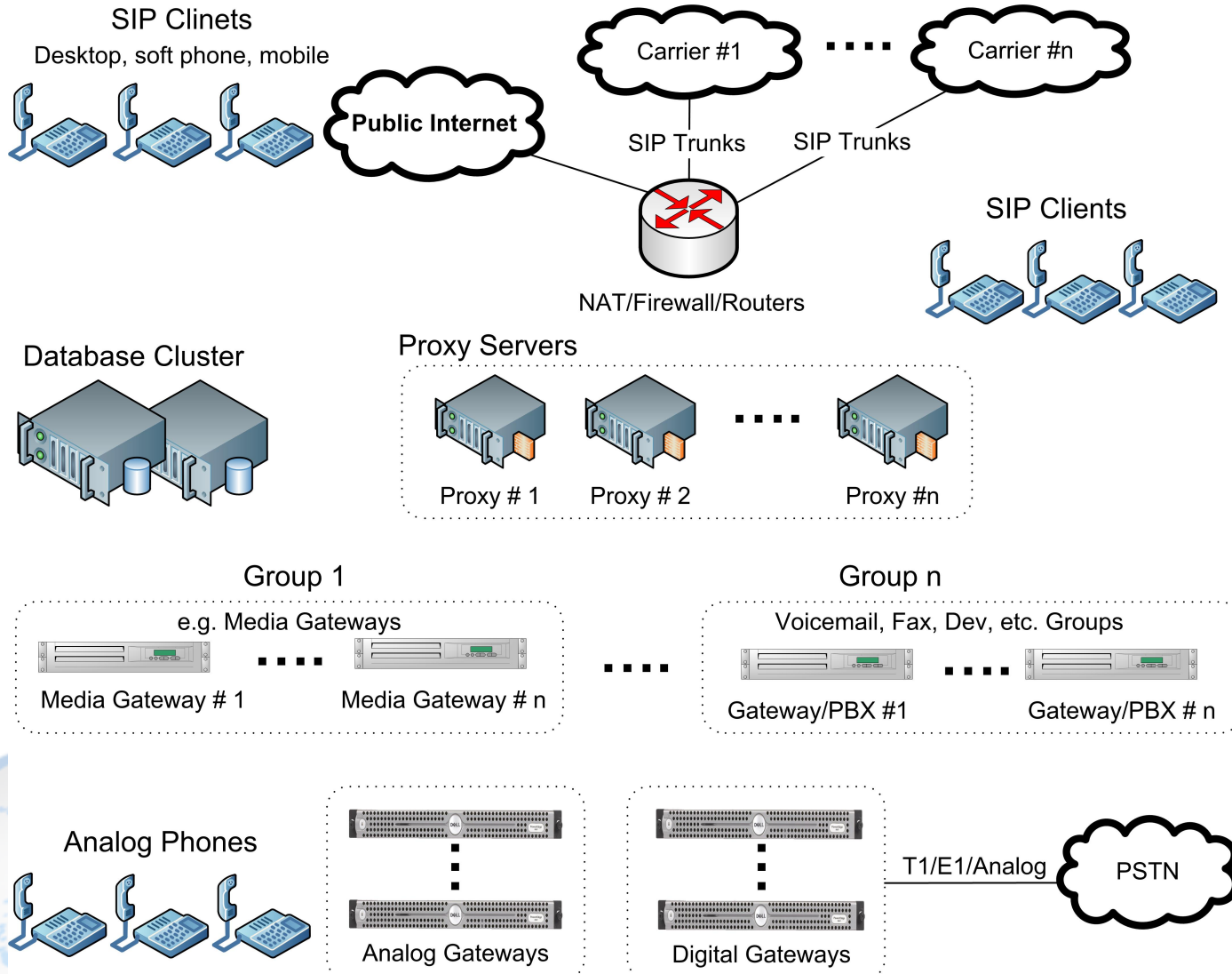
Load balancing

- Load balancer and dispatcher modules
- Groups and resources
- Dialog module
- Load balancer
- Monitoring





Reference Diagram





Dynamic Routing

- Carriers and Trunks
- Rules
- Failure detection and re-routing





Dial Plan Module

- Digit manipulation
- Group selection





Database, Reporting and Management

- Database (mysql, oracle, odbc, postgres)
- MI
- OpenSIPS-CP





Modules (over 120 modules)

- SIP Clients related modules:
 - Registrar Server
 - Authentication
 - Presence Server
 - Instant messaging, Jabber, Jsn, SMS
 - NAT Traversal
 - Back to Back User Agent (topology hiding)





Redundancy

- Heartbeat and Virtual IP
- `net.ipv4.ip_nonlocal_bind`
- Database replication (Master-Slave vs. Master-Master)





Questions?

