



***Cal* OES**

GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

Policy Based Routing in an NG911 Environment

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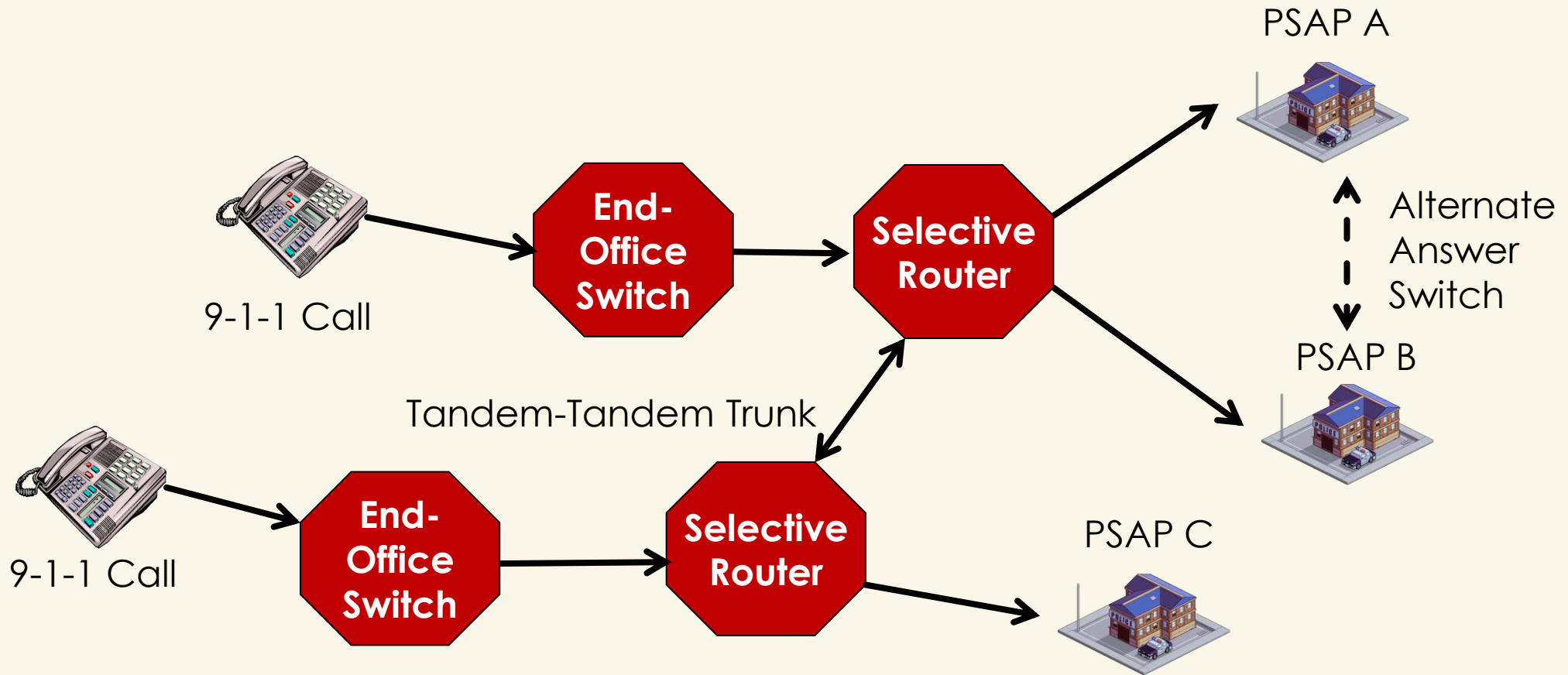


Briefing Overview

- 9-1-1 call routing today
- NG 9-1-1 call routing
- Policy Based Routing
- Discussion and Questions

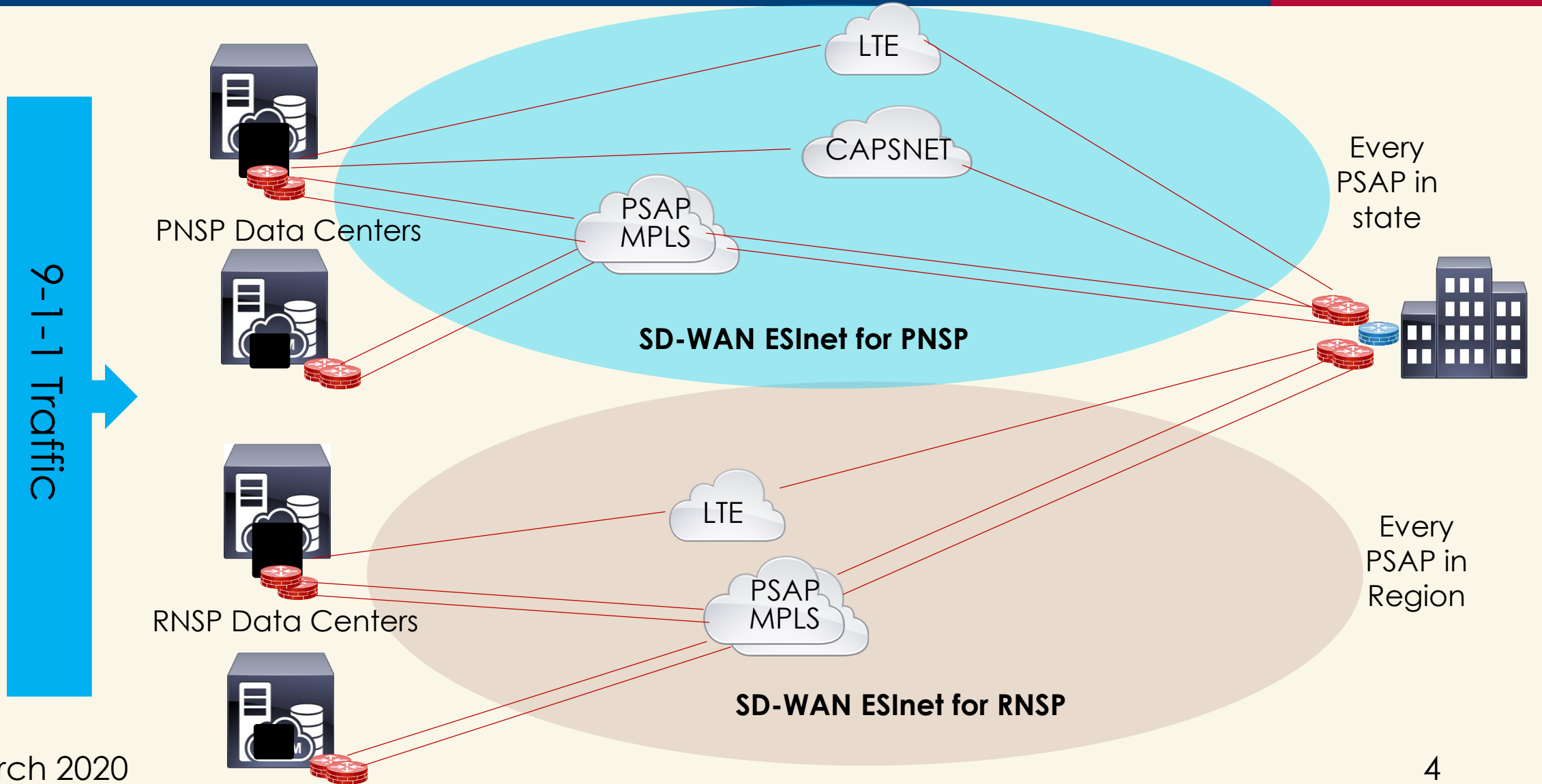


9-1-1 Call Routing Today





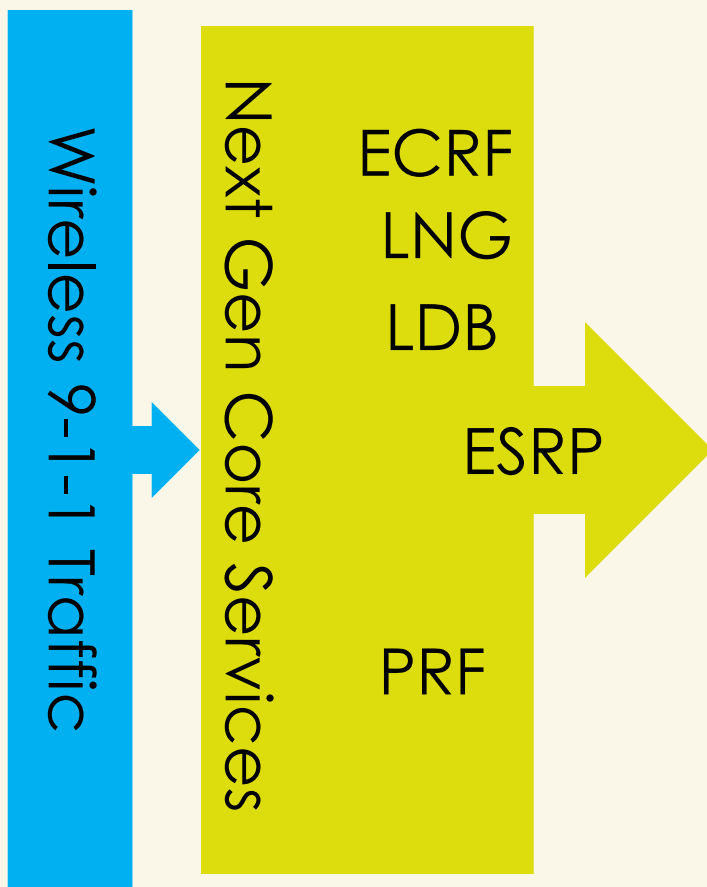
NG 9-1-1 Connectivity





9-1-1 traffic routing with NG 9-1-1

Definitions



ESRP - Emergency Services Routing Proxy essentially replaces the selective routers in NG 9-1-1.

ECRF - Emergency Call Routing Function is the functional element where caller location and routing information for that call is stored (think GIS)

LDB - Location Data Base server retains all of the current information, functionality, and interfaces of today's ALI and can utilize the new protocols required in an NG 9-1-1 deployment

LNG - Legacy Network Gateway - performs specific interworking functions to support ingress of non-i3 calls into the i3 network

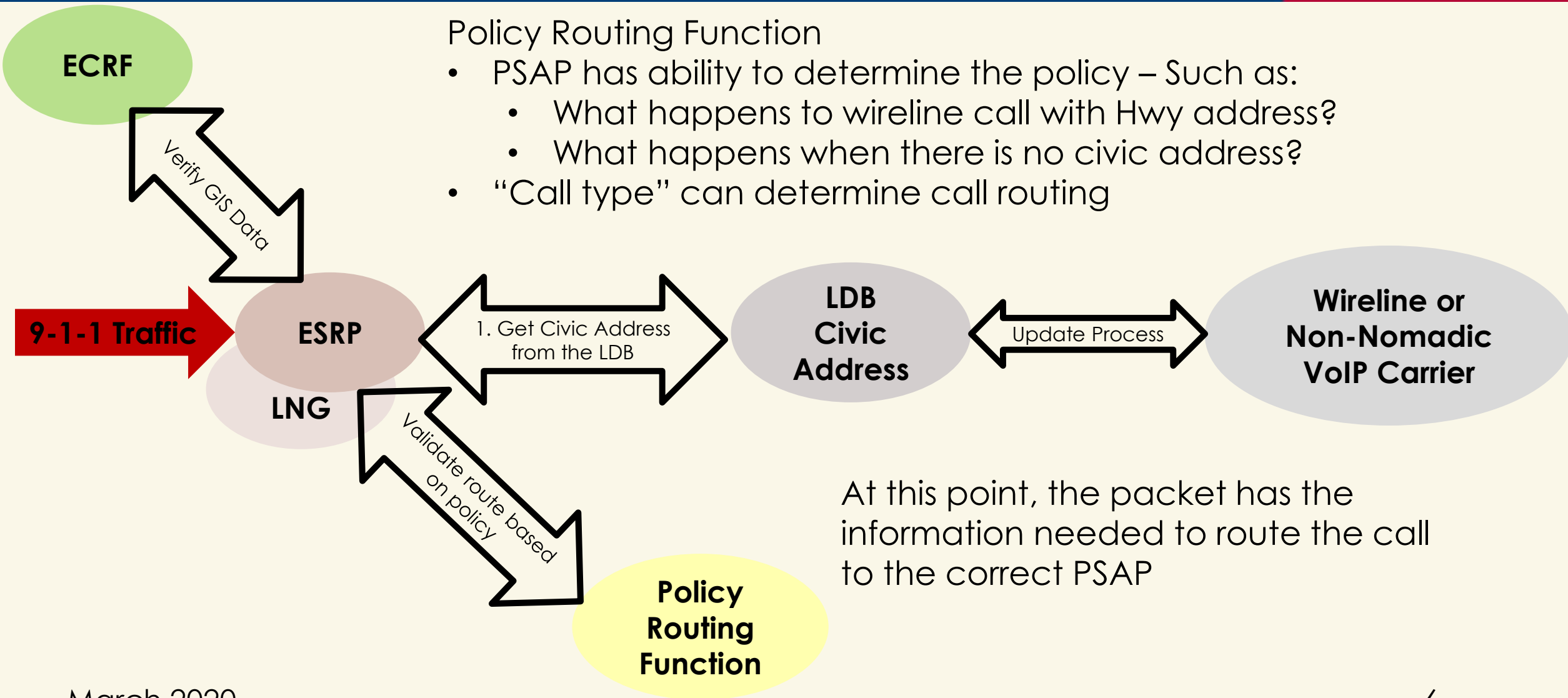
PRF - The Policy Routing Function is where default, alternate, contingent, and emergency routes are located. The PRF is the specific functionality regarding 9-1-1 traffic routes



9-1-1 Traffic Routing with NG 9-1-1 (Wireline and non-Nomadic VoIP)

Policy Routing Function

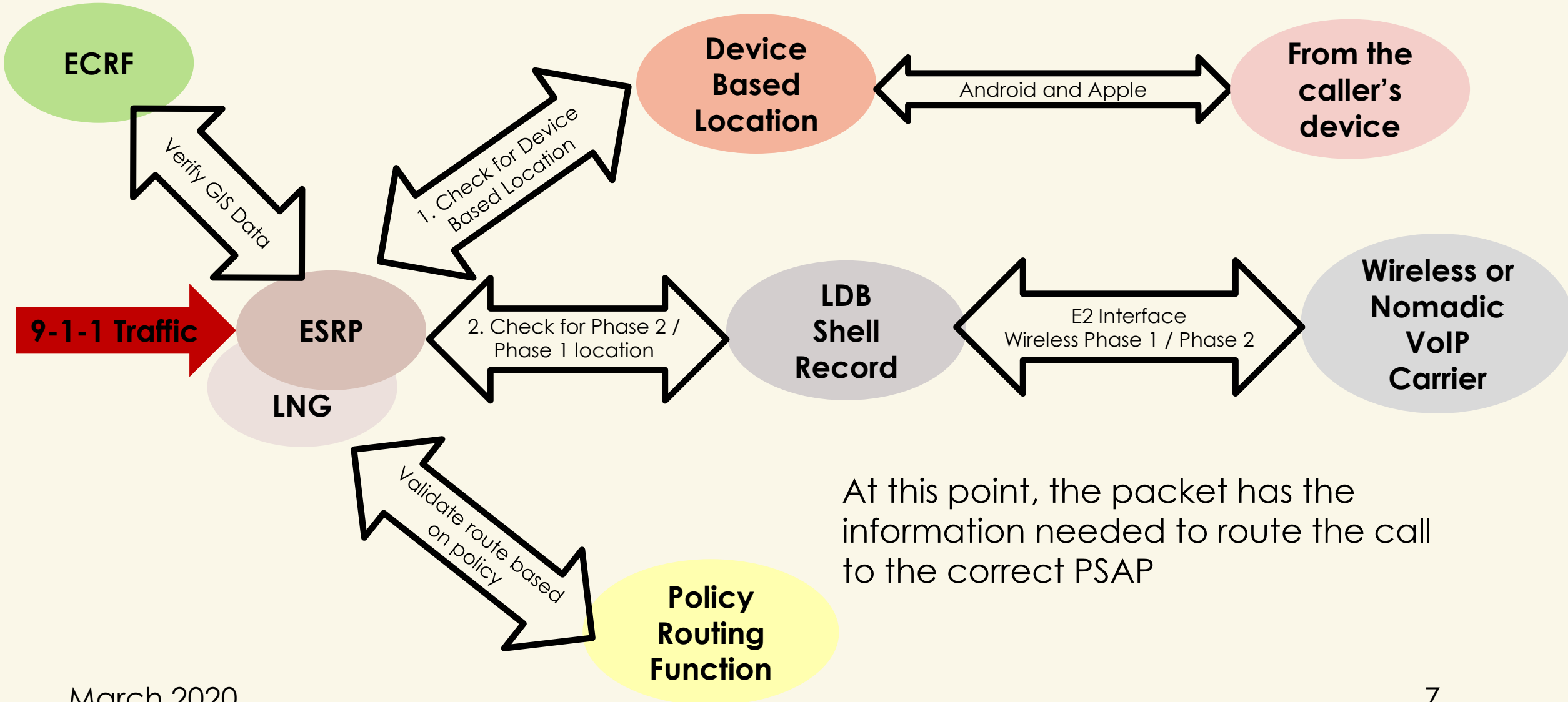
- PSAP has ability to determine the policy – Such as:
 - What happens to wireline call with Hwy address?
 - What happens when there is no civic address?
- “Call type” can determine call routing



At this point, the packet has the information needed to route the call to the correct PSAP



9-1-1 traffic routing with NG 9-1-1 (Wireless and Nomadic VoIP)





Policy Based Routing

- Sets policy rules for normal call delivery and alternate routing
- Sets policy rules for incident based call delivery
- Provides ability to define routing based on operational need
- Requires input from the PSAP

Key: Policy is based on capabilities that align with operational need

ROUTING ON POLICY

Realtime Everywhere, Any Condition Routing

EVERYWHERE

City
County
State

ANY CONDITION

Outage
Overflow
Special Skill
Resource Available
Chicken Switch

**REALTIME
SITUATIONAL
AWARENESS
ROUTING**



Policy Based Routing: 4 Position PSAP

- Today, number of CAMA trunks, selective router, and the CPE determine what happens with the call
- With Next Gen 9-1-1, Policy Routing Function and CPE determine what happens with call
- Policy based routing
 - CPE has the ability to return the state of the CPE position to the NG 9-1-1 system
 - When all 4 positions are busy – return busy, or route call to another PSAP, or place call in queue, or ...
 - When line rings with no answer – time out, or route call to another PSAP, or
- PSAP has the ability to change routing policy
- Prime maintains policy for entire state and shares policy with region
- Alternate answer PSAP and transfers can be to any PSAP (or multiple PSAPs) in the state
- Not limited by region boundaries
- Policy based routing can be upon request, or dynamic



Policy Based Routing: Alternate Answer

- Today: alternate answer is limited to a single PSAP connected to your selective router
- With NG 9-1-1, your alternate PSAP can be any PSAP in the state
- Larger PSAPs can select multiple alternate answer locations
- Alternate answer locations can vary based on operational need
 - Time of day
 - Number of dispatchers
 - Multiple PSAPs based on operational need



Policy Based Routing: Incident Based

- Can define incident based policy routing
 - Planned events
 - Disasters
 - Local incidents
- Incident based routing can be pre-planned
- For unplanned events, incident based routing can be in near real time, likely within hours



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Questions and Discussion



Next Gen 9-1-1 Components

- **ESRP** - Emergency Services Routing Proxy essentially replaces the selective routers in NG 9-1-1
- **ECRF** - Emergency Call Routing Function is the functional element where caller location and routing information for that call is stored
- **PRF** – The Policy Routing Function is where default, alternate, contingent, and emergency routes are located. The PRF is the specific functionality regarding 9-1-1 traffic routes
- **ALI DB service** - The Automatic Location Information DataBase is being used to route calls in a legacy system
- **LDB** – Location Data Base server retains all of the current information, functionality, and interfaces of today's ALI and can utilize the new protocols required in an NG 9-1-1 deployment
- **LIS** – Location Information Server will transition the ALI database transition into the ESInet / NG 9-1-1 core
- **LVF** - The ECRF connects to the LIS to determine location and validates it through a Location Validation Function (LVF)
- **LSRG** – Legacy Selective Router Gateway
- **LNG** – Legacy Network Gateway - performs specific interworking functions to support ingress of non-i3 calls into the i3 network
- **LPG** – Legacy PSAP Gateway