



Washington County

PENNSYLVANIA

Washington County, Pennsylvania

P25 System Public Safety Radio Project Update

October 28, 2025



Information and Future Updates



This presentation reflects our current understanding of the Washington County public safety radio project, based on the information available at this stage. As we continue working closely with first responder leaders and other stakeholders, we expect to refine and enhance certain aspects to best meet the needs of the community. We are committed to keeping the public informed and will provide updates as new details emerge.



Tonight's Discussion:

- Opening Remarks
- Site and Project schedule update
- Trunked Radio 101
- Subscriber Requirements
- Subscriber Equitable Allocation & Distribution Plan
- Q&A
- Closing Remarks



Infrastructure Improvements



Site Improvements



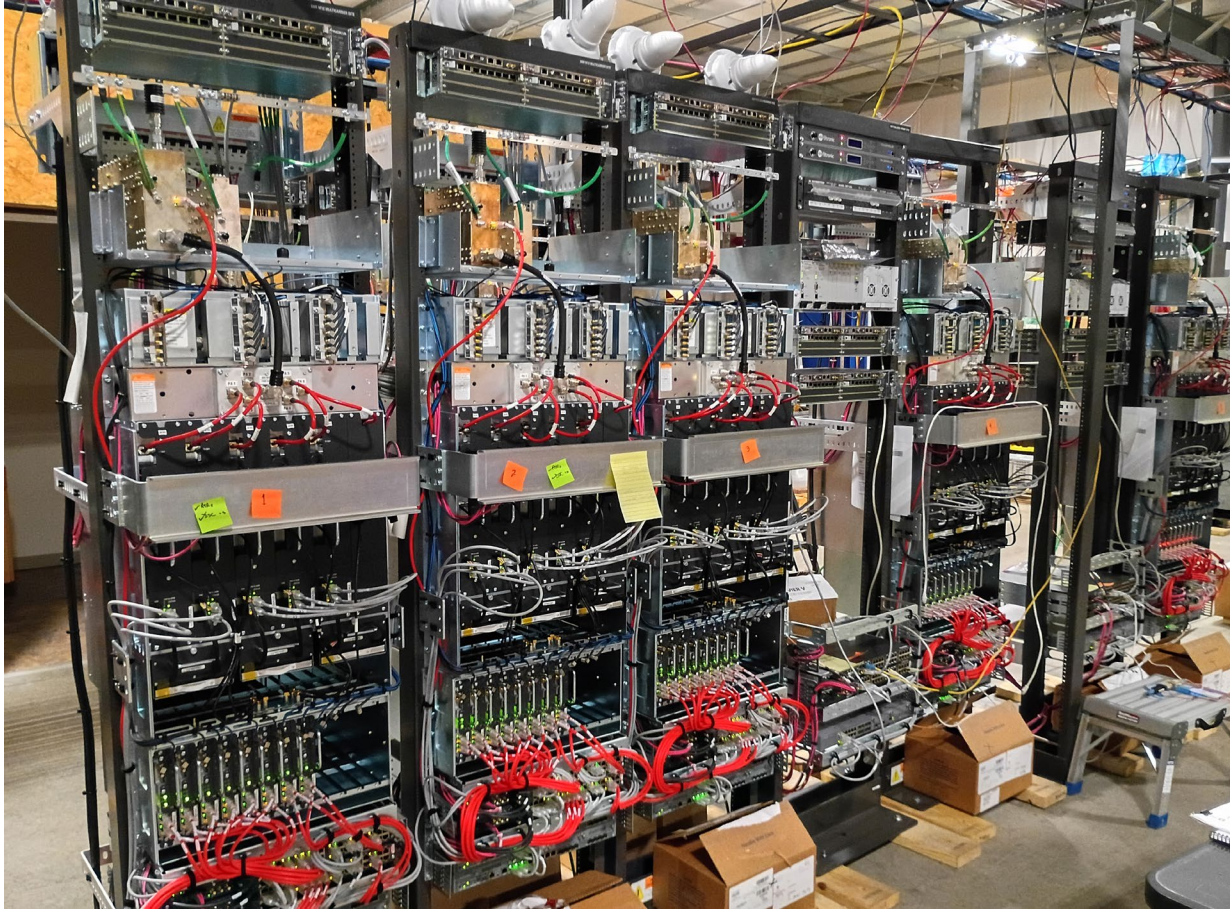
Equipment Upgrades



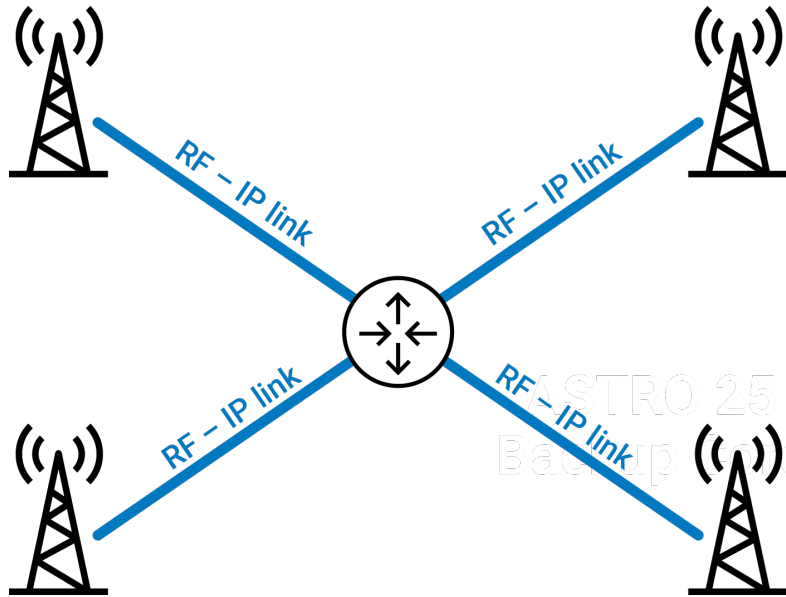
Tower Improvements



New System Infrastructure



Current Communication Issues



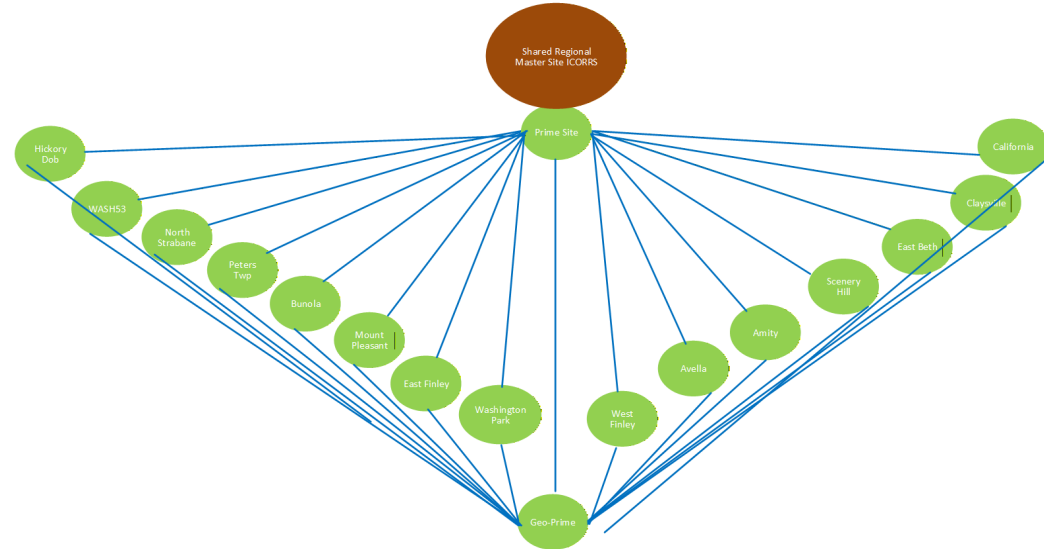
Zoned System

- Each channel has a different coverage area
- User experience limited to channel they are operating on
- Radio channel change needed to switch between operational channel and coverage

New System Solution



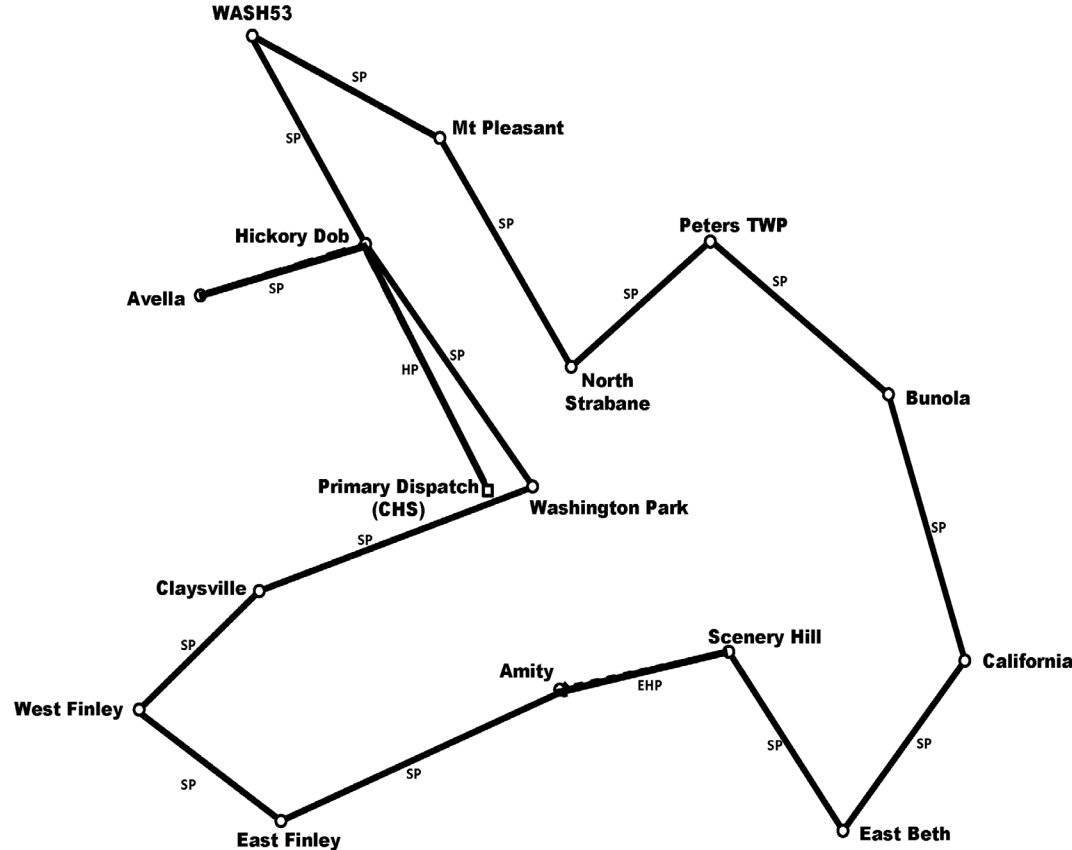
- Fifteen (15) 800 MHz Simulcast Sites
- Shared Regional Master Site
 - ICORRS Core
- Trunking Prime Site
- Geo-redundant Virtualized Prime Site
- Eight (8) Channels
 - Ten (10) TDMA Talkpaths
 - Two (2) FDMA Talkpaths
 - 1 Control Channel



Motorola - Washington County PA

Microwave System Layout

Total: 16 sites 16 Hops



Added a 15th Site

A mix of Crown Castle, SBA, Private & Public Sites.

Drastic Improvement over existing system with locations, heights, & coverage.

Will guarantee 90% on street portable and 95% mobile coverage.

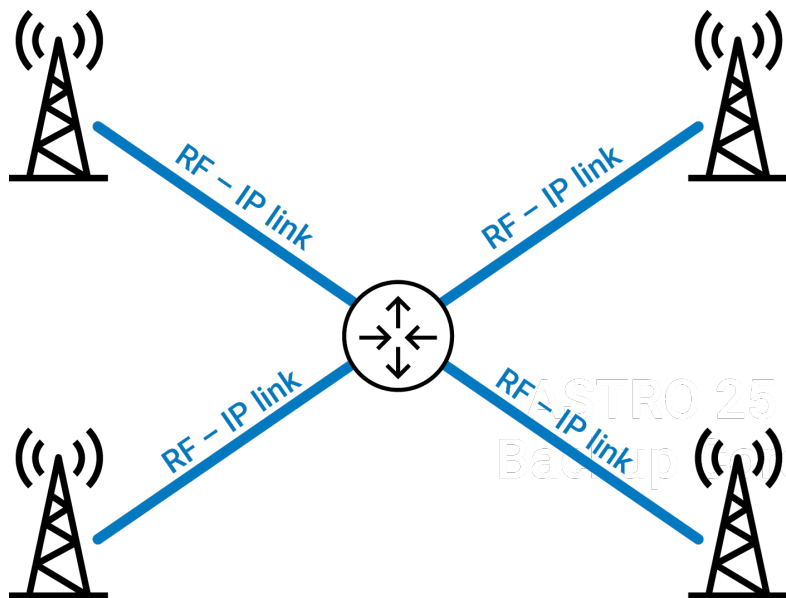


Current Project Schedule /Timeline



2024	2025				2026				2027
Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Project Kickoff and CDR									
				Site Development (MCP Site Ac) (MSI Shelter Install)					
		Equipment Ordering							
				LMR Staging					
				MW Staging					
					LMR Install				
						Subscribers Ordering			
							FNE Optimization & Testing		
							Subscribers Programming		
							Coverage Testing		
								Final Acceptance & Start of Warranty	

Solution: From Zoned System To Simulcast



Simulcast System

- All channels work at all tower sites

Why Trunking?



Conventional	Trunking
Each channel uses a specific frequency	System uses a pool of frequencies , and "talk groups" are dynamically assigned when a call is initiated
Adding a channel requires licensing new frequencies , purchasing repeaters, and expanding antenna systems	Virtually limitless number of talk groups that can be assigned without any hardware changes
Channel change required to switch between different sites/zones	Radios can seamlessly roam from one site to another
Limited ability to support data	Integrated voice and data

Trunking Systems

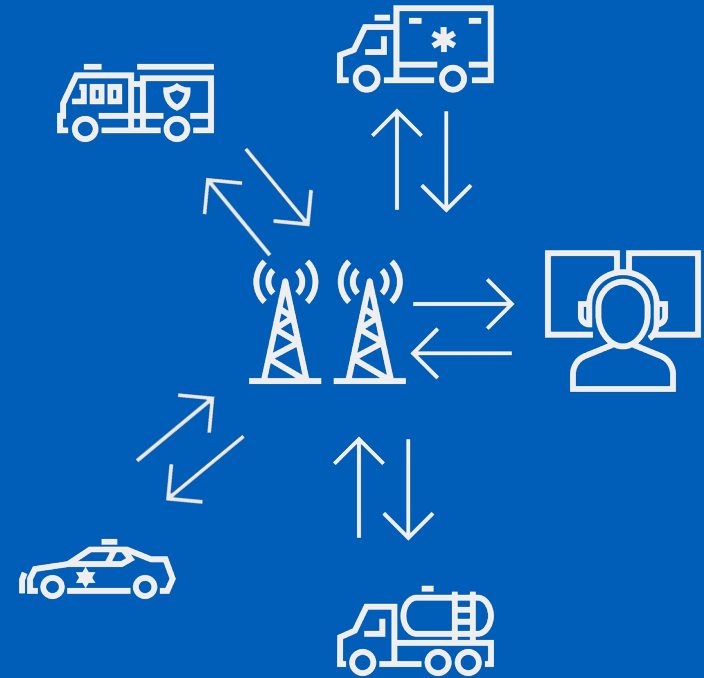


Trunking Systems Overview

Trunking Systems

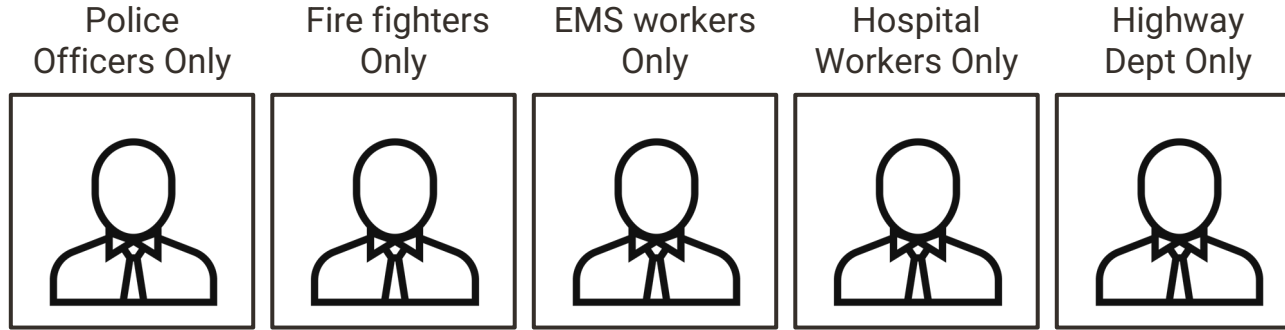
In trunking systems, frequencies are not dedicated to a discipline (PD,FD,EMS), rather allocated by a controller

- Radios “subscribe” (register) to the system controller
- Disciplines have “talkgroups” a (virtual channel)
- Dedicated control channel (CC) assigns channels and steers subscribers to an open frequency
- Numerous Capabilities



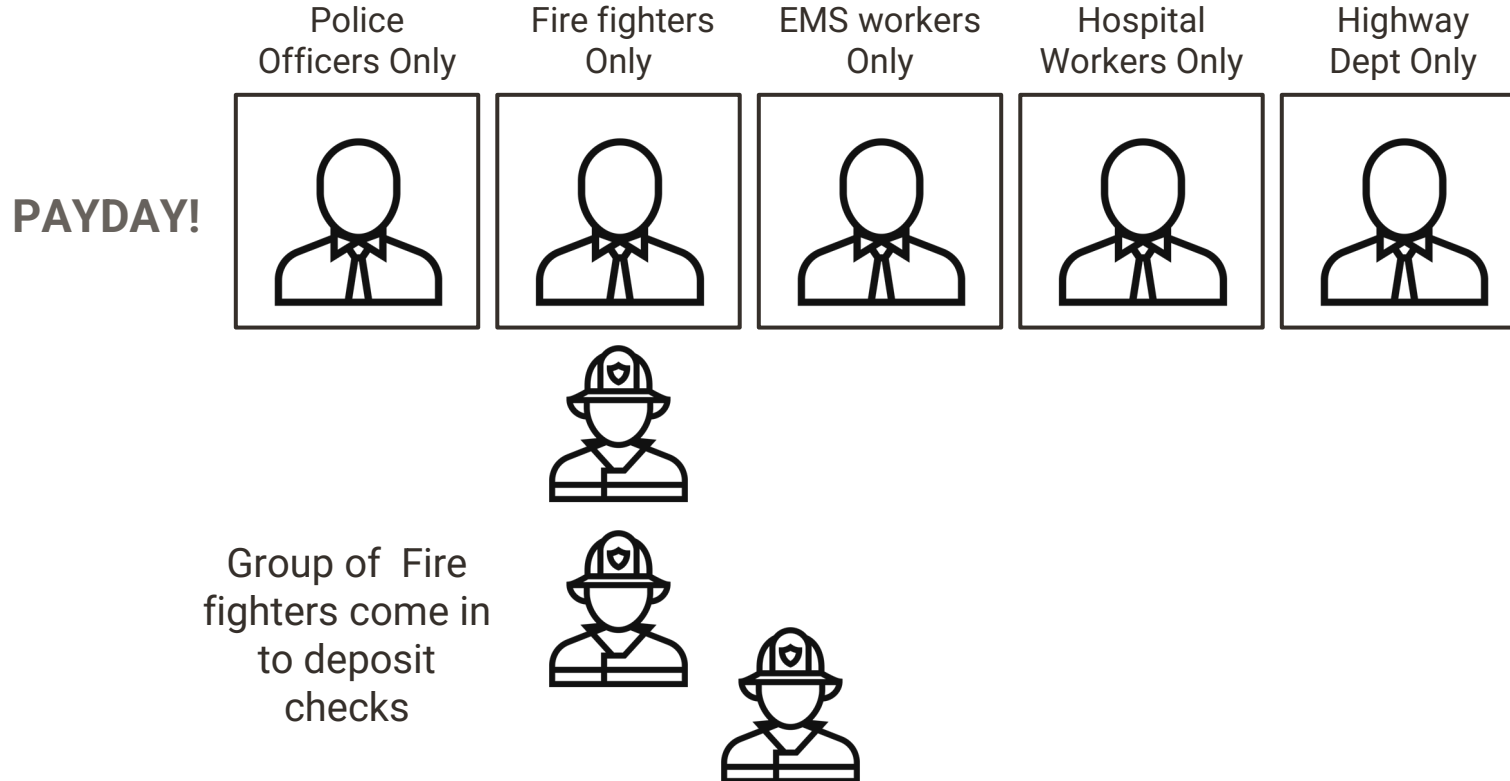
Conventional System

Trunking Systems - The bank analogy - Conventional Systems



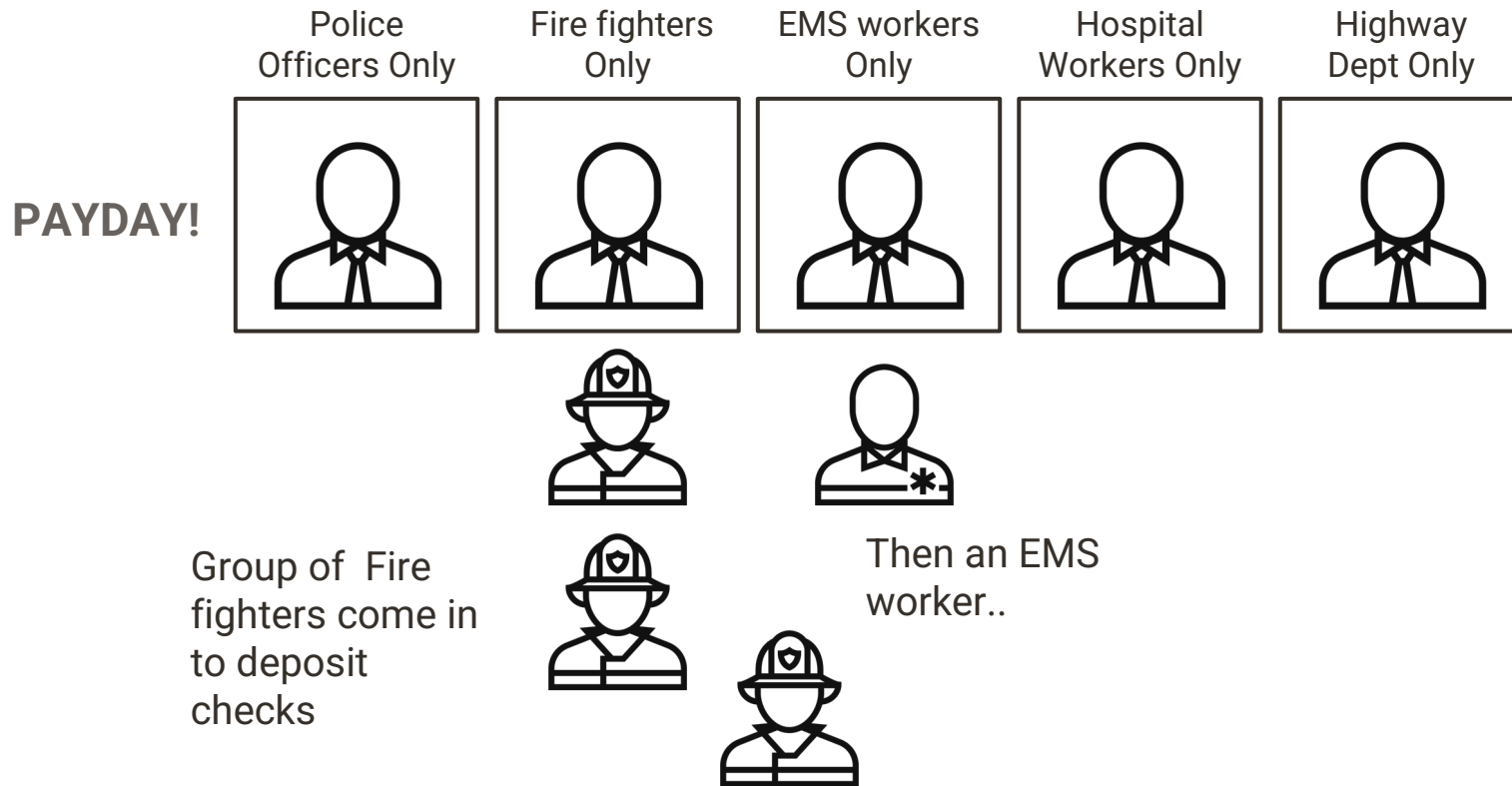
Conventional System

Trunking Systems - The bank analogy - Conventional Systems



Conventional System

Trunking Systems - The bank analogy - Conventional Systems



Conventional System

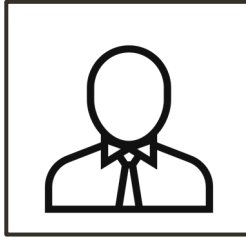
Trunking Systems - The bank analogy - Conventional Systems

PAYDAY!

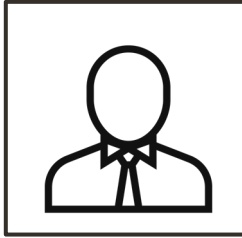
Police
Officers Only



Fire fighters
Only



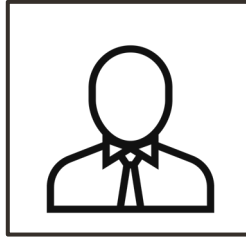
EMS workers
Only



Hospital
Workers Only



Highway
Dept Only



Group of Fire
fighters come in
to deposit
checks



Then an EMS
worker..



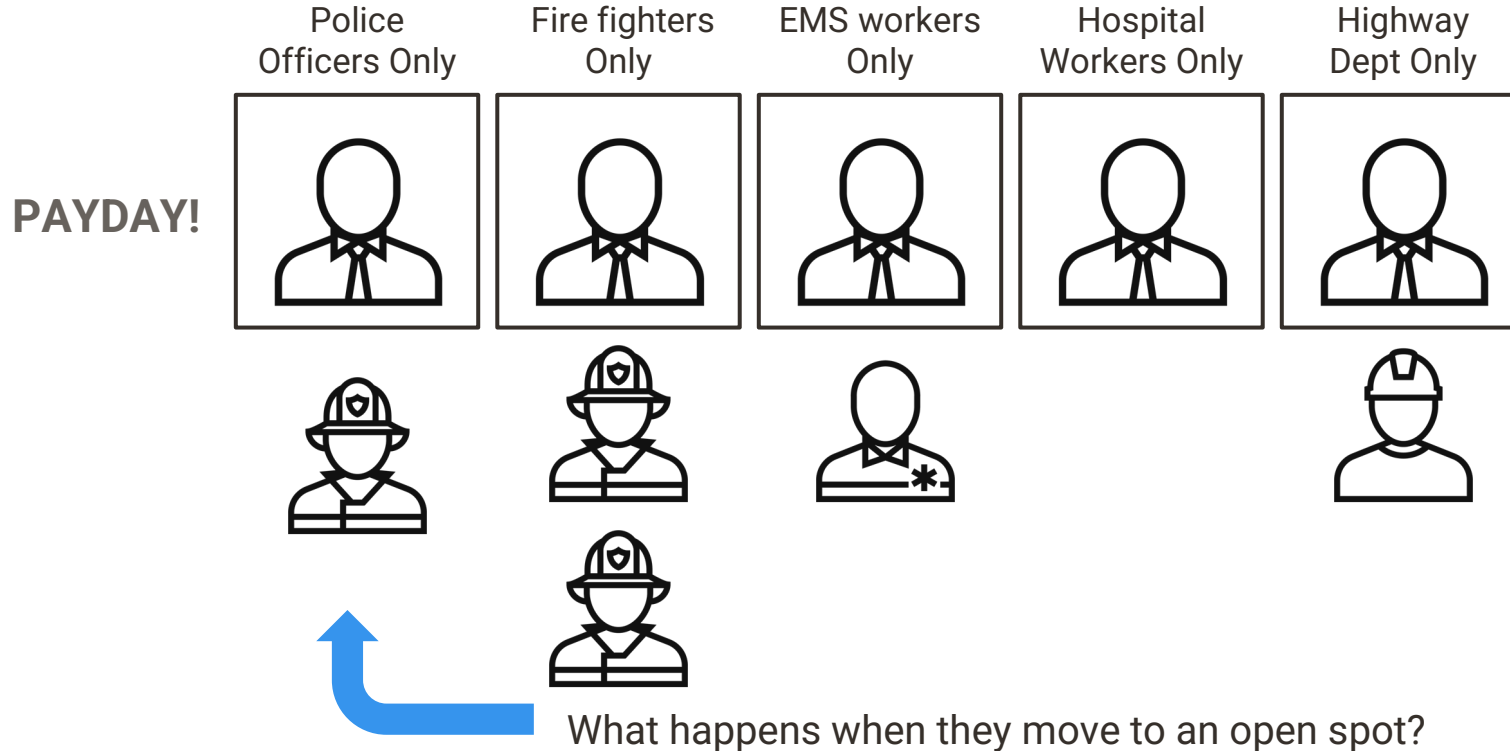
< This person is still waiting!

Then a Highway
Dept worker..



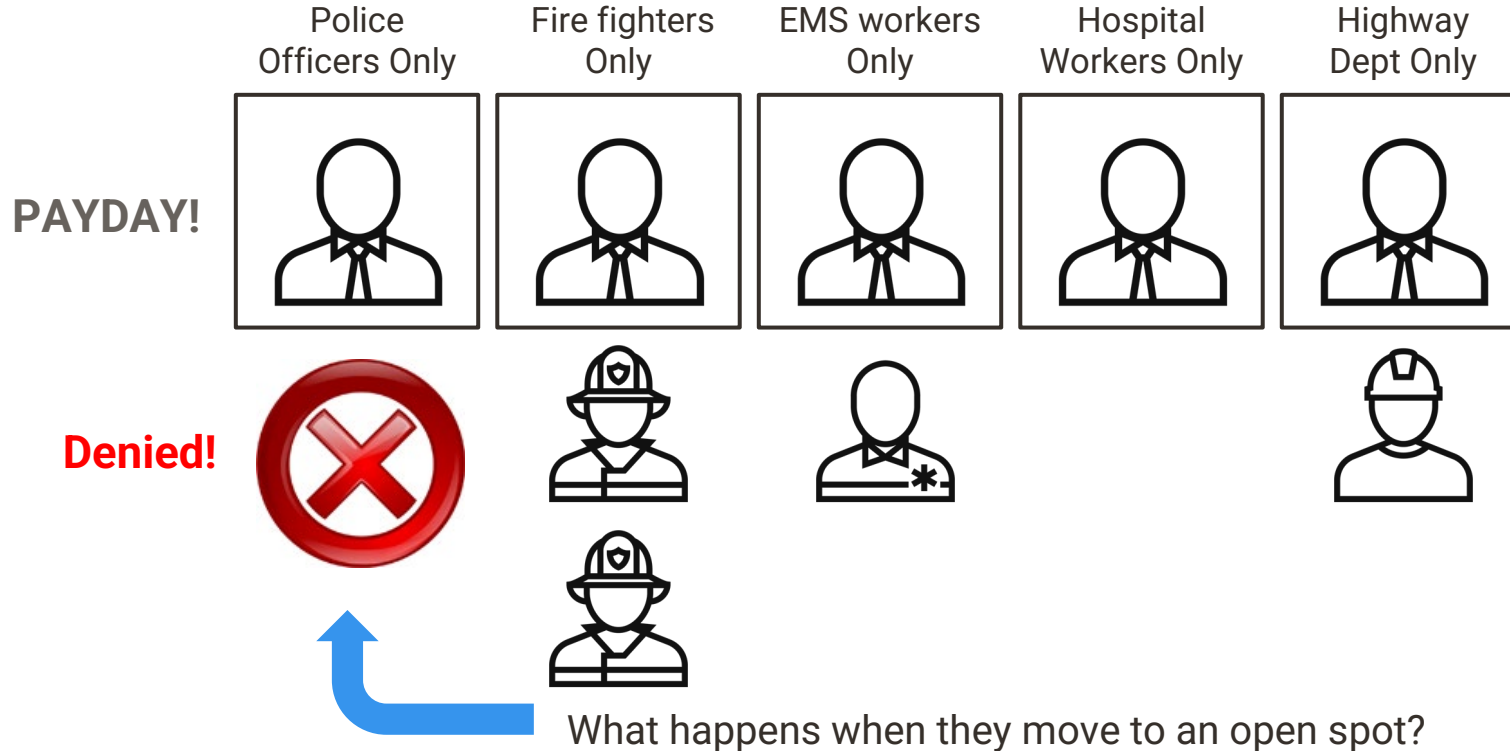
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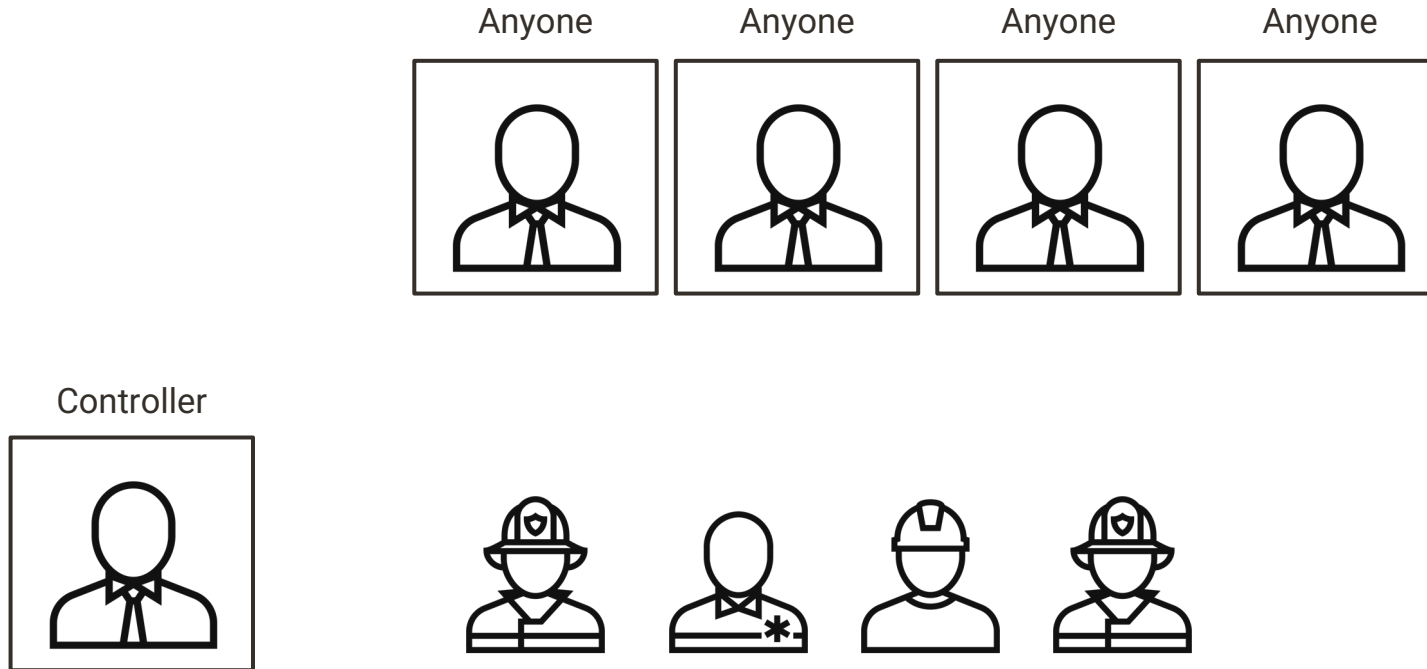
Conventional System

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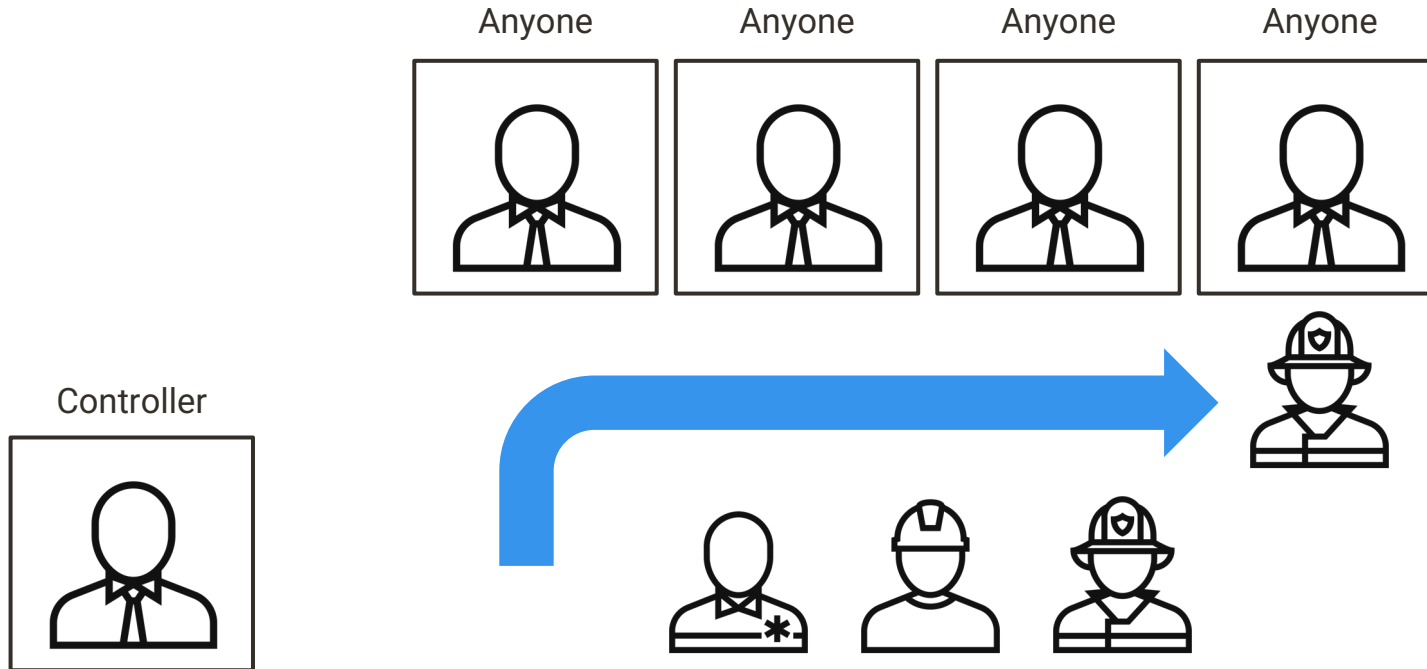
Trunking Systems

Trunking Systems - The bank analogy - Trunking Systems



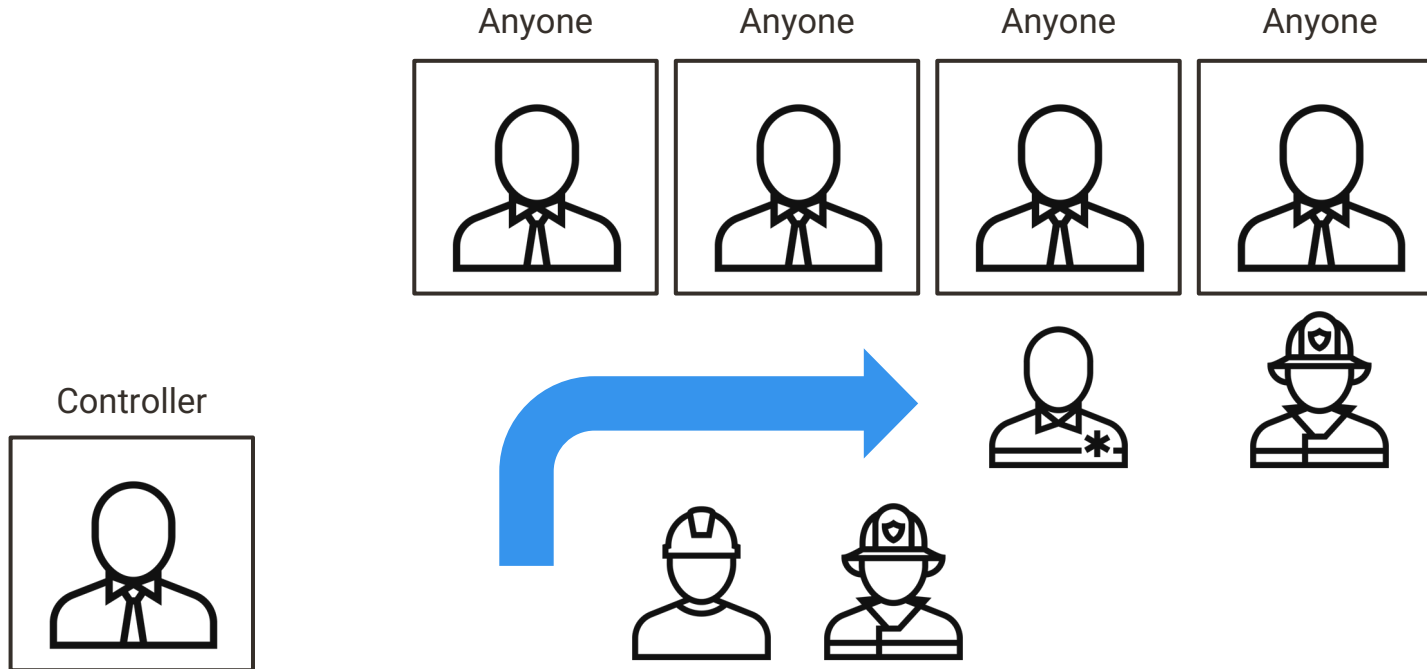
Trunking Systems

Trunking Systems - The bank analogy - Trunking Systems



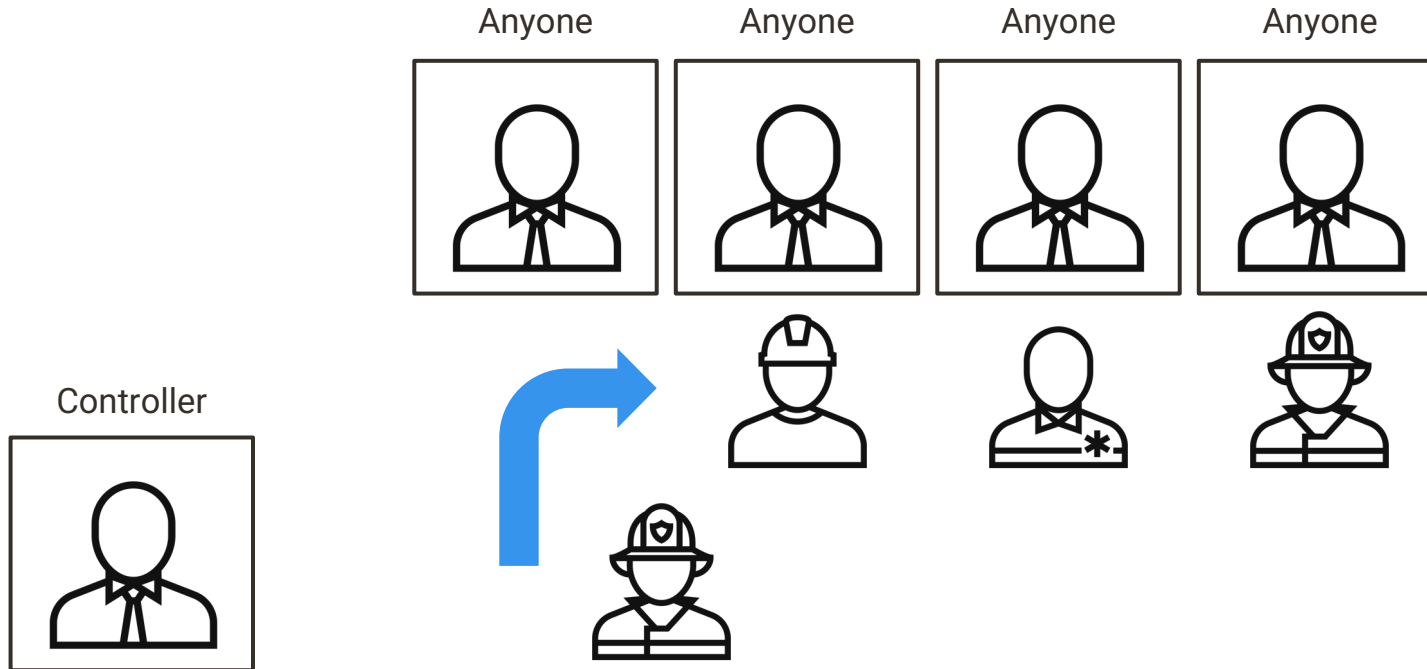
Trunking Systems

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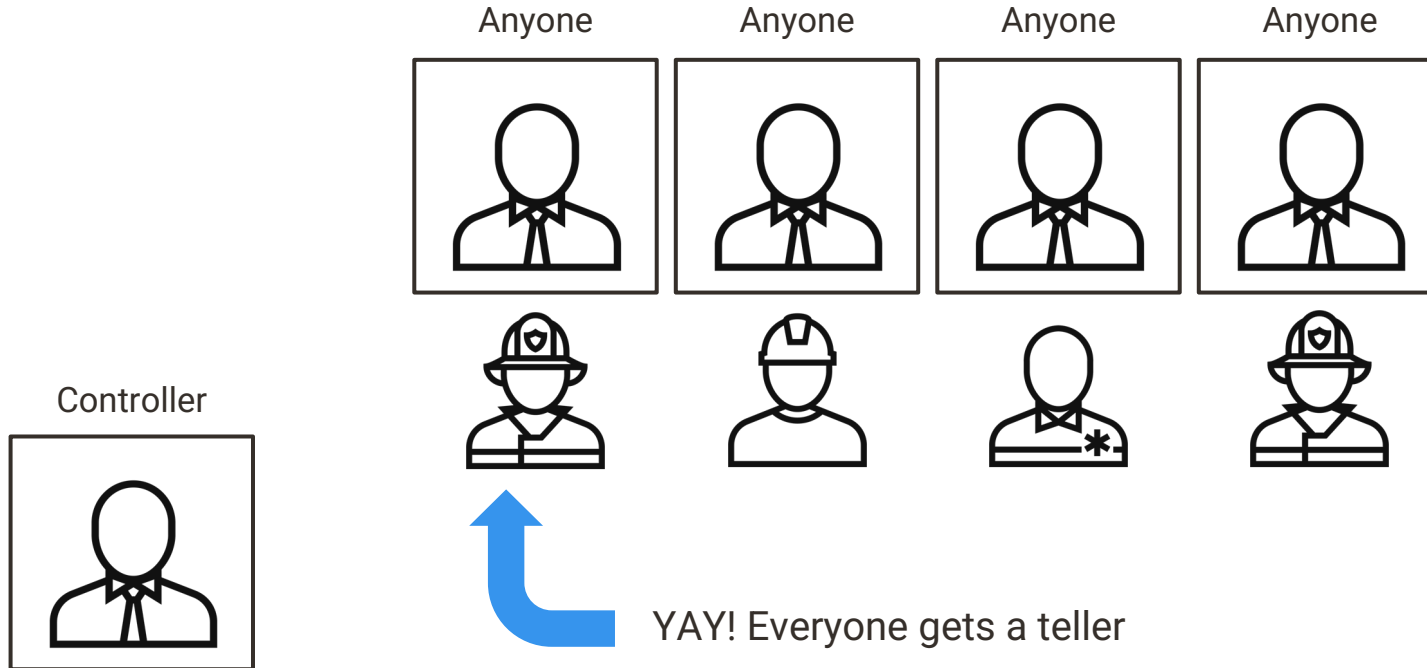
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Trunking Systems

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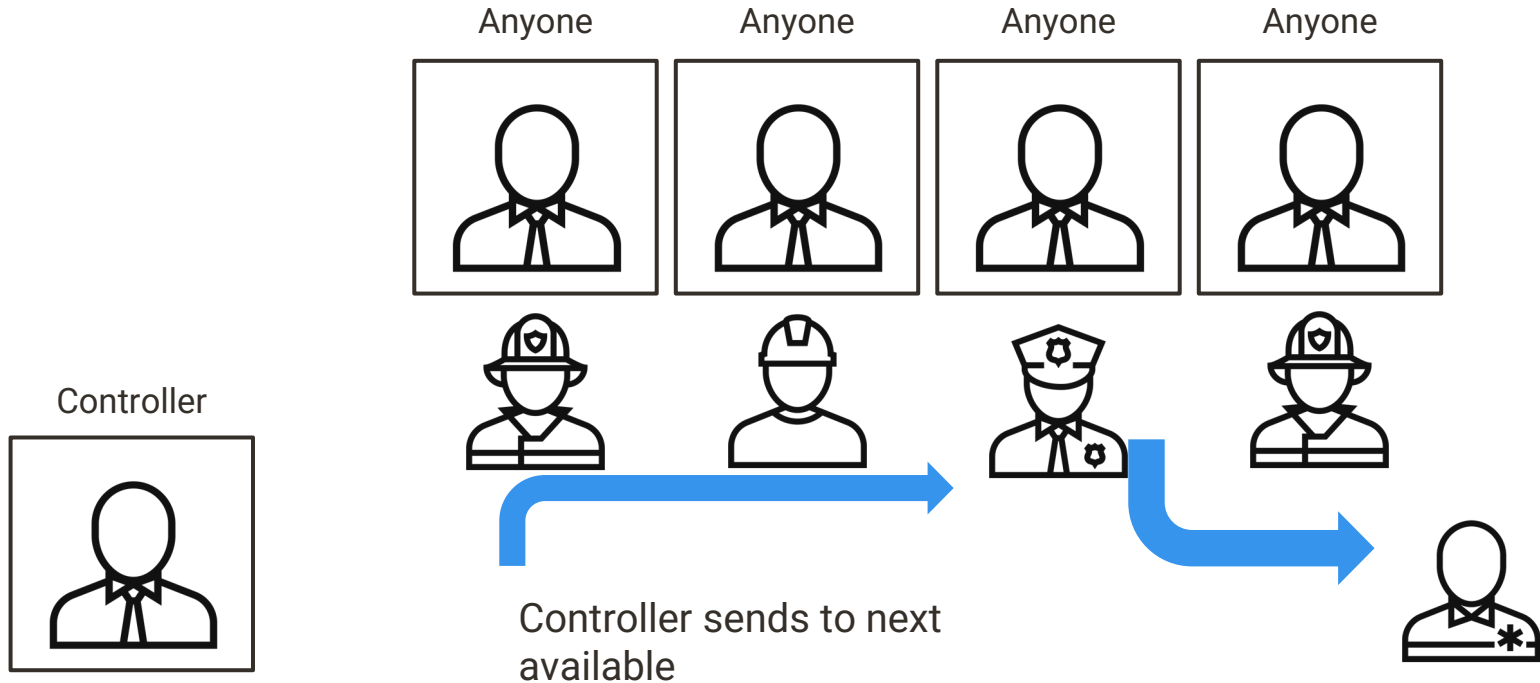
Trunking Systems

Trunking Systems - The bank analogy - Trunking Systems



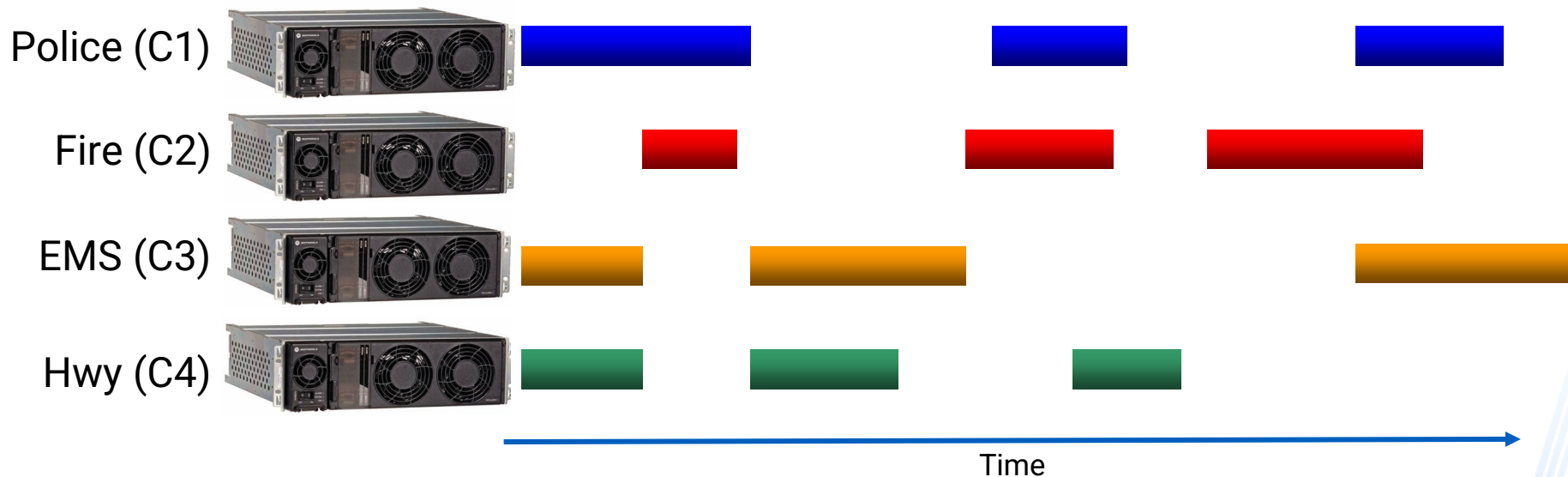
Trunking Systems

Trunking Systems - The bank analogy - Trunking Systems



Conventional Repeater Systems

Conventional Systems



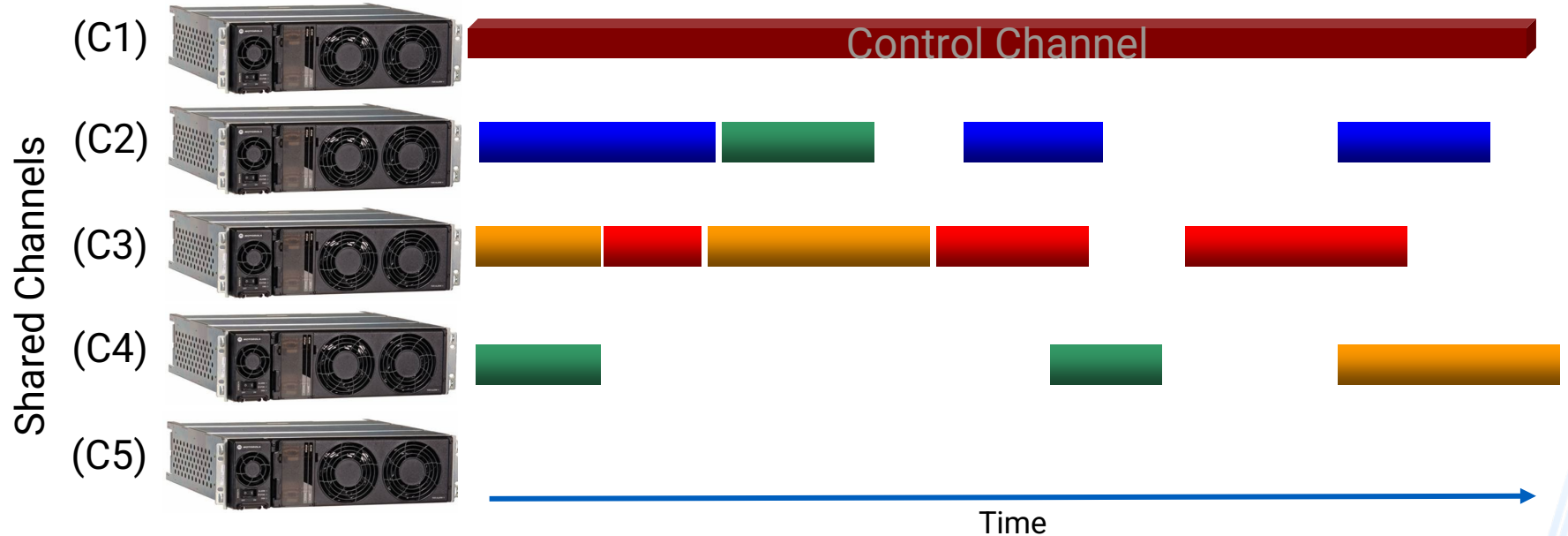
Bars represent time of use on each of the channels (C1 – C4)

All channels are in use with a significant amount of unused capacity.



Trunking Systems

Trunking Systems

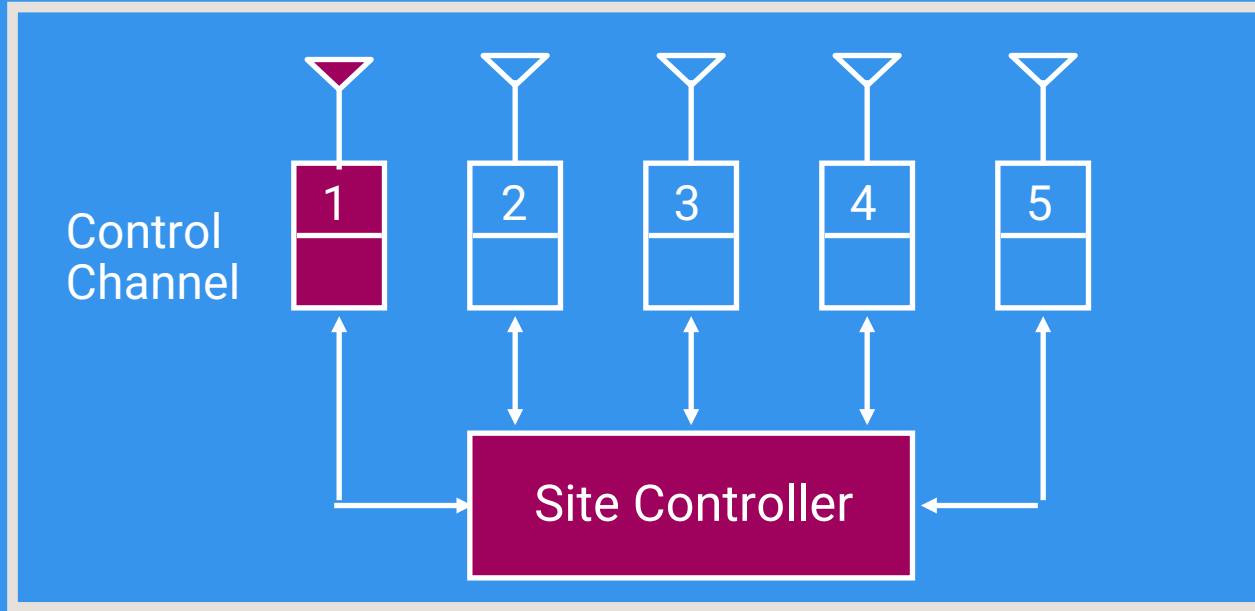


Bars represent time of use on each of the channels (C1 – C5)
Still 4 talk paths, but more available airtime.



Trunking Systems Overview

Trunking Systems



Central Controller (“Traffic Cop”) Assigns Available Channels To User Groups
Requests sent via Digital Signaling





System Enhancements

Increased channel capacity

Improved Network Connectivity

More resilient and redundant network

Enhanced Interoperability

Digital

Coverage Guranteed

ICORRS - What is it?



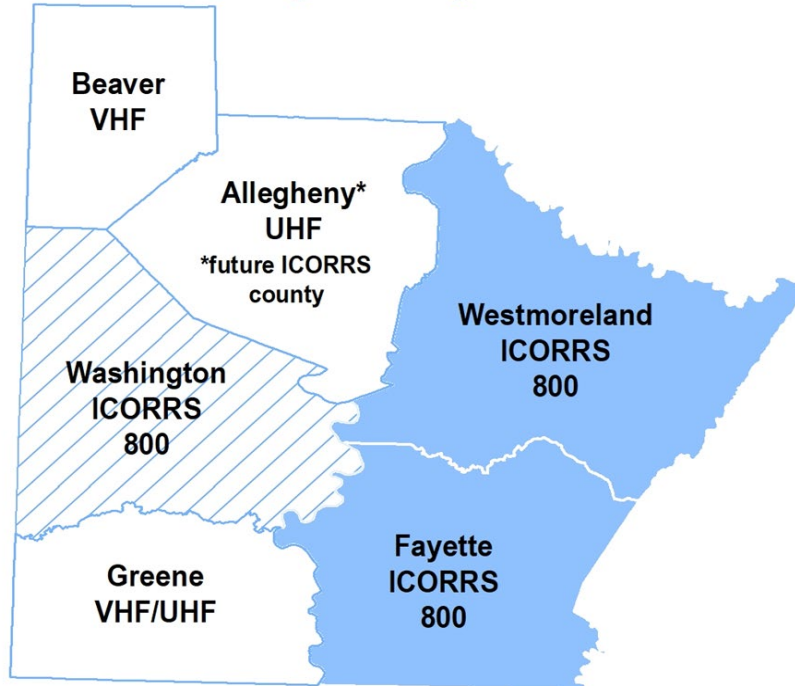
ICORRS = Inter County Regional Radio System

- Motorola core radio system infrastructure shared by member agencies
- Member Agencies: *Allegheny (under construction) Armstrong, Butler, Cambria, Lawrence, Mercer, Fayette, Indiana, Somerset, , Westmoreland*
- Component redundancy
- Access control – *only authorized radios* are allowed access to the network
- Remote system monitoring
- Flexibility to support future expansion
- ***Ability for radios to roam between different member county systems*** (subject to agency approval and type of subscriber)

ICORRS - Key Benefits



Washington County, Pennsylvania ICORRS Interoperability and Mutual Aid



**Reduce the need to carry multiple
radios using Interop talk groups**



So When Will We Get Our Radios?



What Are The Portable Requirements ?

Digital Conventional (P25)*

Digital Trunking*

Advanced System Key(ASK)

TDMA Operation Phase II

Radio Authentication*

Multi-System Over The Air Re-Keying (OTAR)

Over the Air Programming(OTAP)*

Group Services

ADP and AES Encryption (Police Only)

P25 Over the Air Rekeying(OTAR) with Multi-key (Police Only)*

Digital Tone Signaling*

Adaptive Noise Suppression

* Denotes ICORRS Requirement

Equitable Allocation & Distribution Plan (EADP)



At the recommendation of the Public Safety Advisory Board and Land Mobile Radio Subcommittee the Equitable Allocation & Distribution Plan's formula is based on the following:

Riding & Unit Positions

EADP - Timing



- Over the next 6 months please be responsive with the county as they work with agencies to begin the process of **confirming accuracy of the EADP.**
- Should it be determined that more subscribers are needed, the county will procure them.

EADP – Police – APX N50



Police will receive a mobile and portable for each in service vehicle (unit) & one base station for each station.

PORTABLE – 218

MOBILE – 218

BASE STATION – 34

EADP – EMS – APX N50



EMS will receive 1 mobile and 2 portable for each transport unit, 1 mobile and 1 portable for non transport licensed units, & one base station per station.

PORTABLE – 107

MOBILE – 58

BASE STATION – 17

** It is possible the total number of allocation for EMS will be reduced once confirmed they already have compatible equipment and did not exclusively service Washington County.*

EADP – FIRE – APX XE 70



Fire is calculated based on apparatus & SCBA positions

:

Engine: 1 mobile & 5 portables

Aerial: 1 mobile & 5 portables

Rescue: 1 mobile & 4 portables

Other (Tanker, Medic, Squad, Brush): 1 mobile & 2 portables

PORTABLES – 841

MOBILES – 285

BASE STATION 62

EADP Summary



Base Station	Units
Police	34
Fire	62
EMS	17

Portables	Units
Police	218
Fire	841
EMS	107

Mobiles	Units
Police	218
Fire	285
EMS	58

Common Questions



What if I buy portables before the EADP begins!

Please be sure they meet the system requirements, or they will not be compatible with the new radio system, i.e. they will not work.

Can I purchase additional units at the discounted rate?

Yes, Motorola will allow you to purchase them with the county's 42% discount off list price for subscriber units only.

Will my existing pager still work ?

Yes.



Q & A Rules



You were given a Q & A Card when you arrived. Please make sure it is filled out with your full name, department, & role for consideration of a response. Incomplete cards will not receive a response.

If you want a personal response – please indicated that on the card.

If you want your question addressed to the audience indicate that.

Again, incomplete cards WILL NOT BE CONSIDERED.

Follow - Up



This presentation will be made available at

<https://www.washingtoncopa.gov/public-safety/radio-project>

For specific questions please email:

publicsafetyradio@co.Washington.pa.us

Thank You



Presented 10-28-2025

