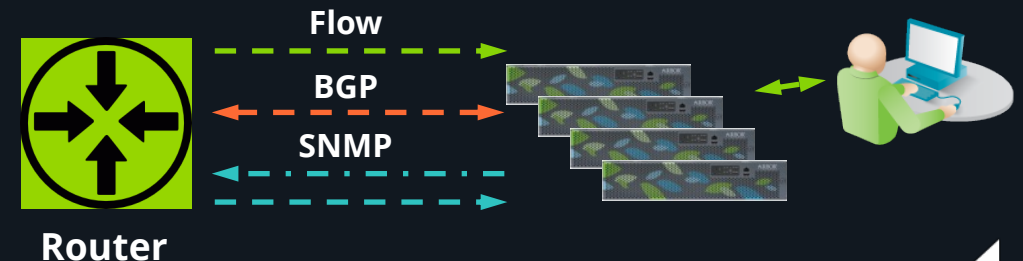


# The start of COVID-19 Pandemic and LATAM Traffic Impact – Adapt



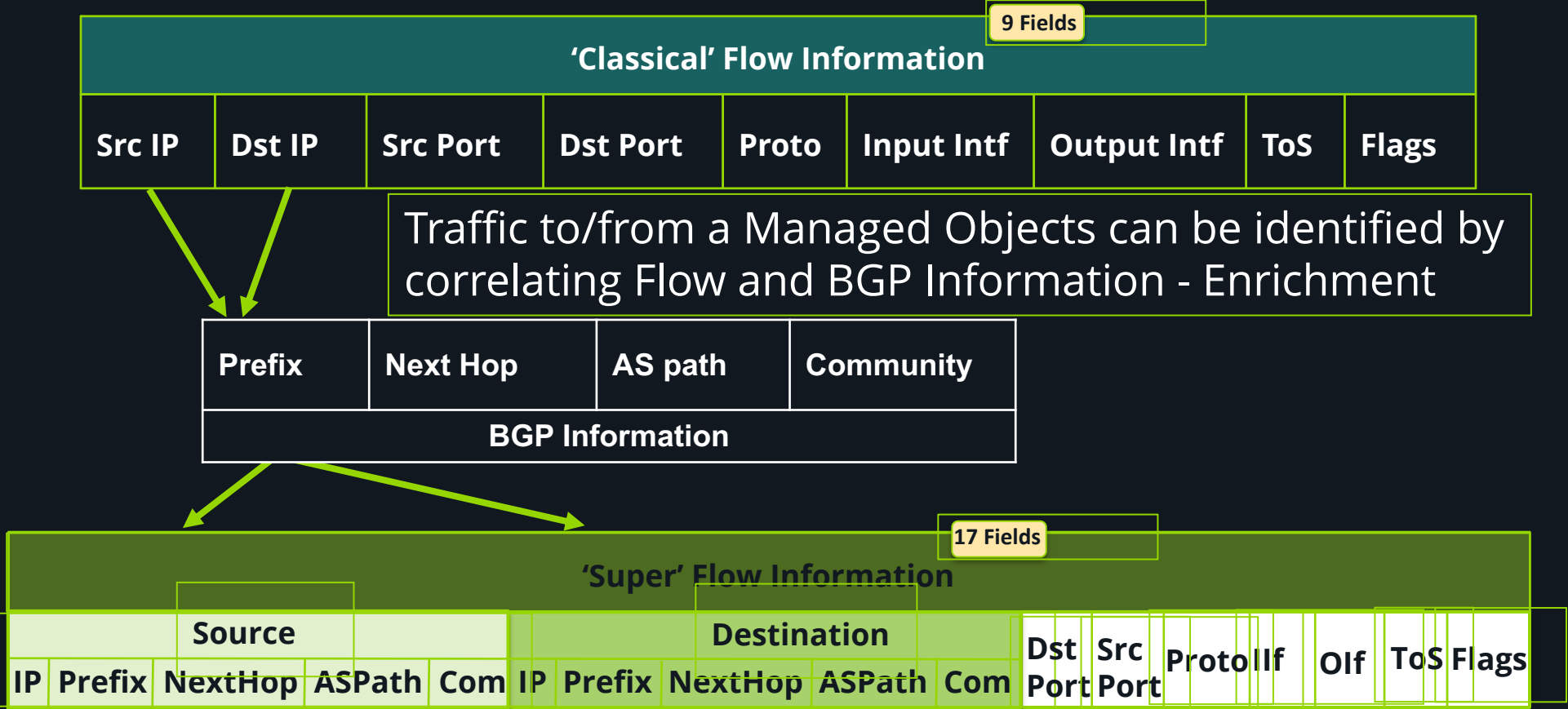
## Flow Telemetry and Enrichment

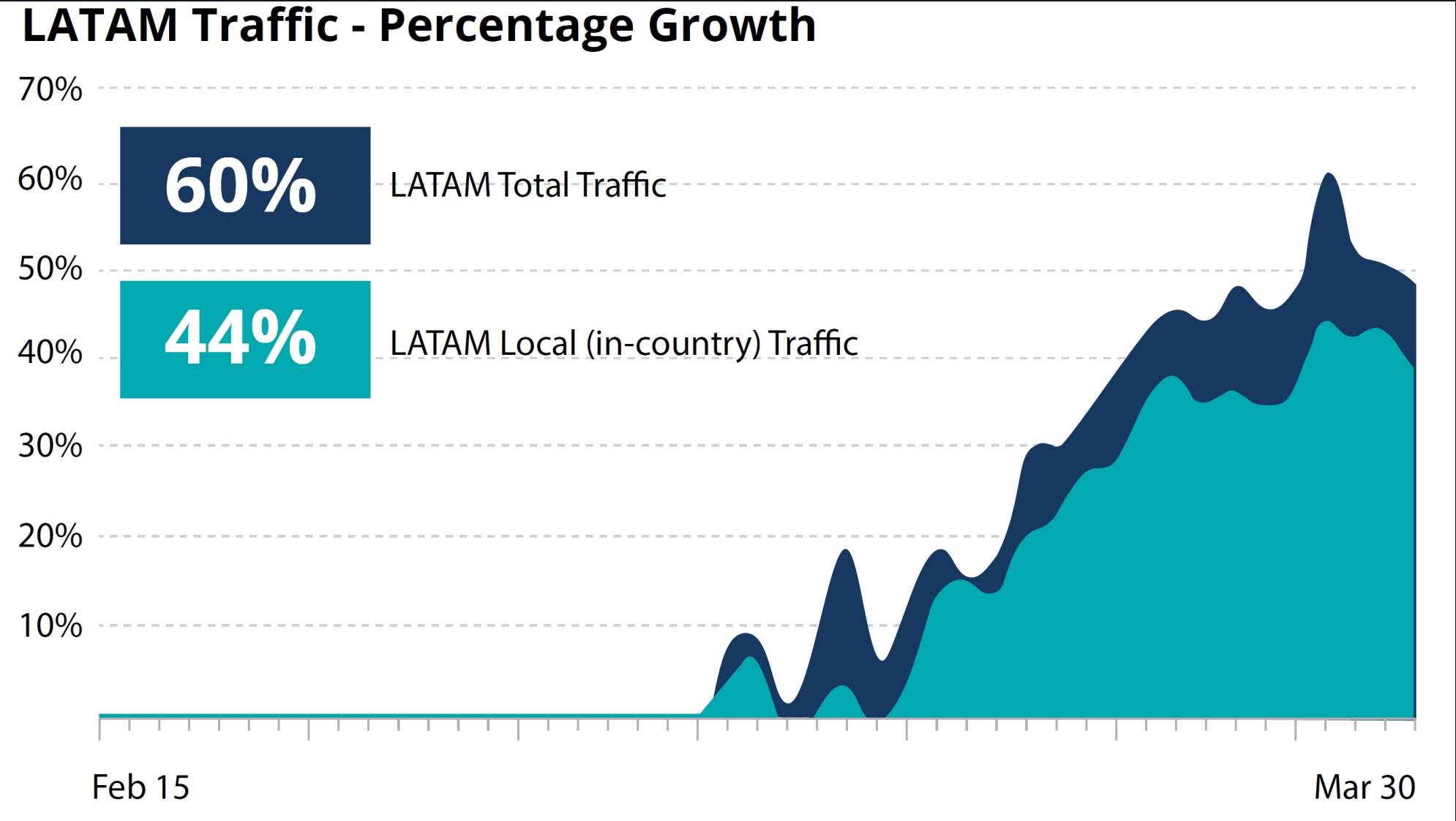
- **Flow Telemetry** provides data to aid in understanding complex routing architectures, interconnection, and routing policy, at Tbps scale
- **Obtains accurate traffic reports for the network**
  - How much data?
  - How is it entering and leaving the network?
  - Where is it ultimately going to or coming from?
  - What percentage of my data is going here versus there?
- **Establish data trends**
  - What is the makeup of the data?
  - How is this changing over time?
  - When did significant network events occurred?



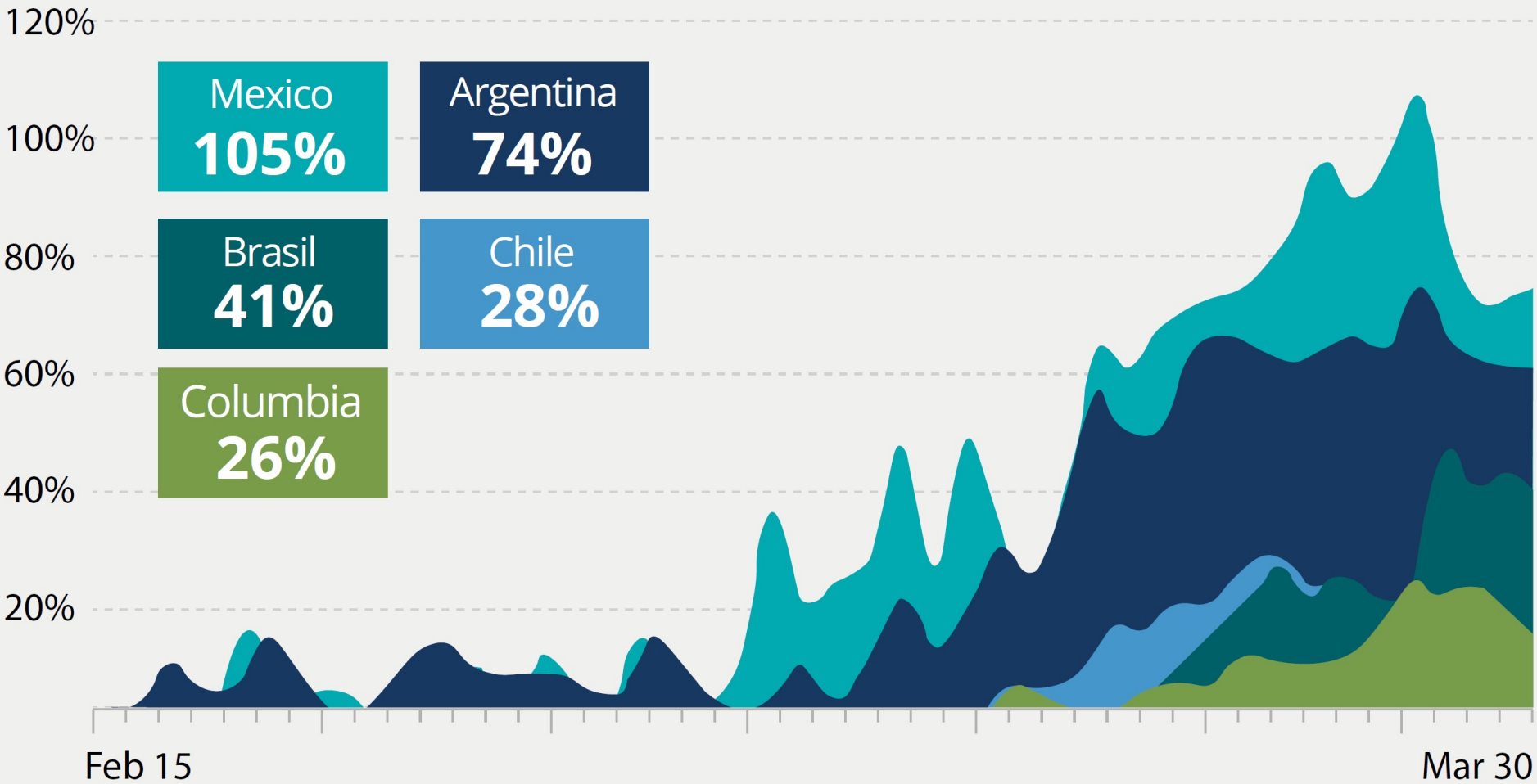
# Flow Telemetry and Basic Enrichment - BGP

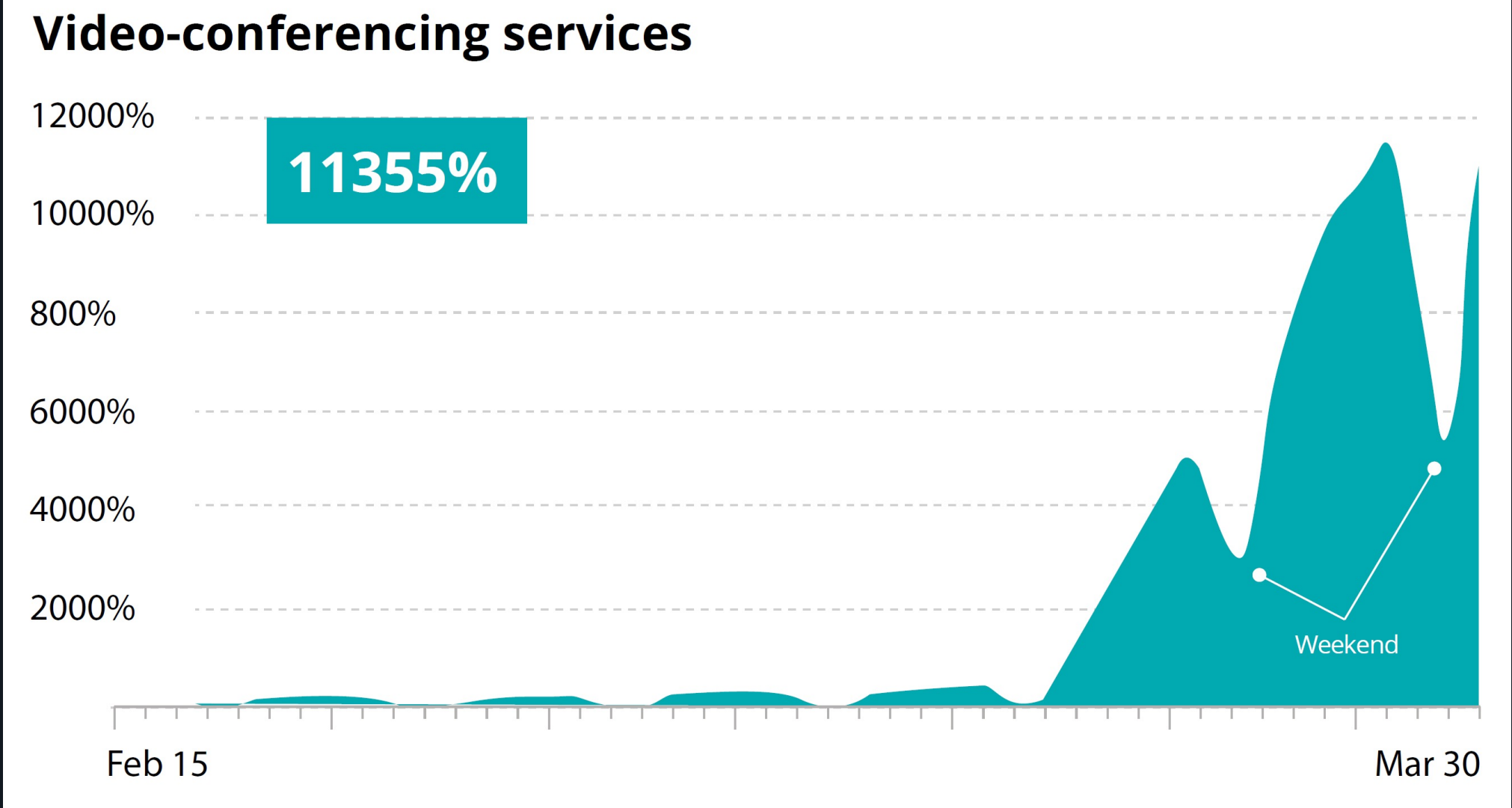
longest match on src IP and dst IP of the flow to the prefixes in BGP routes





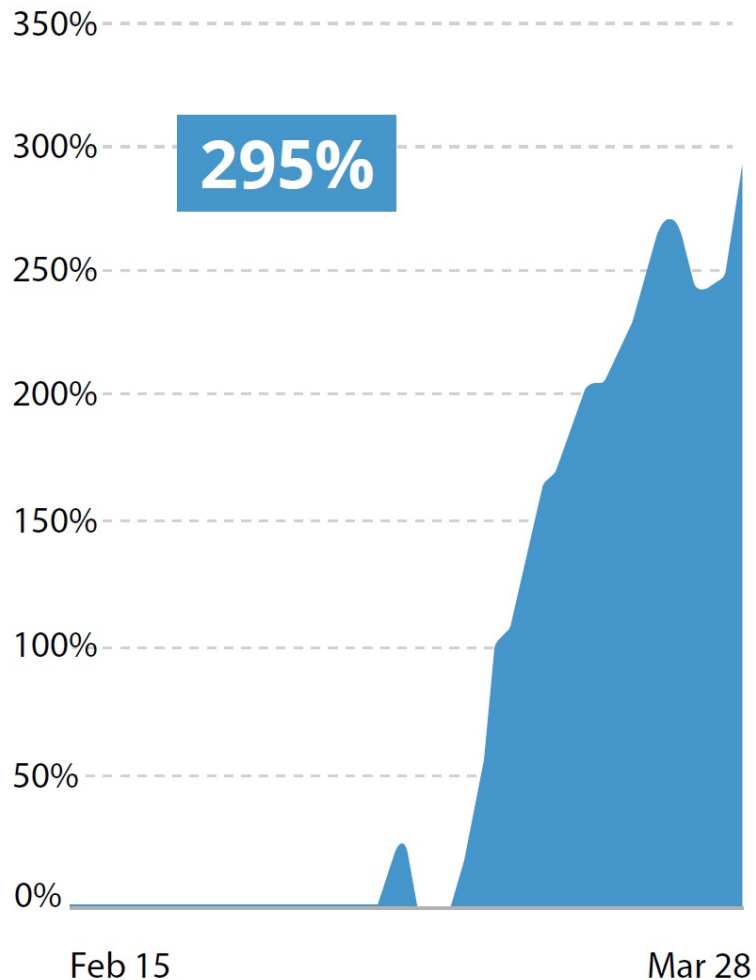
LATAM Traffic - Top 5 Country Percentage Growth





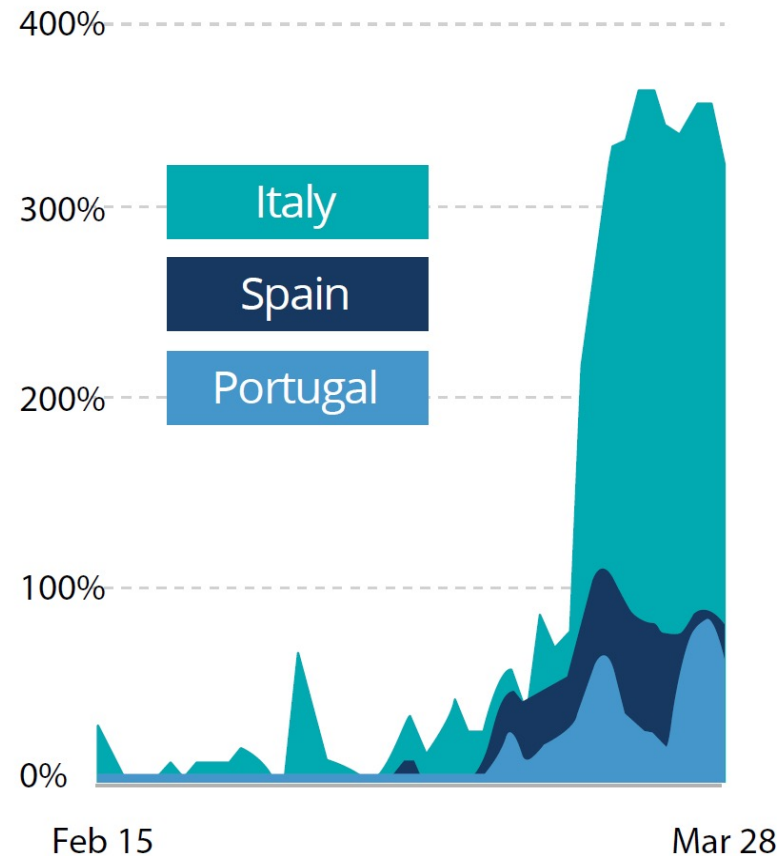


## Gaming Services



## Friends and Relatives Percentage Traffic

Breakdown per European countries



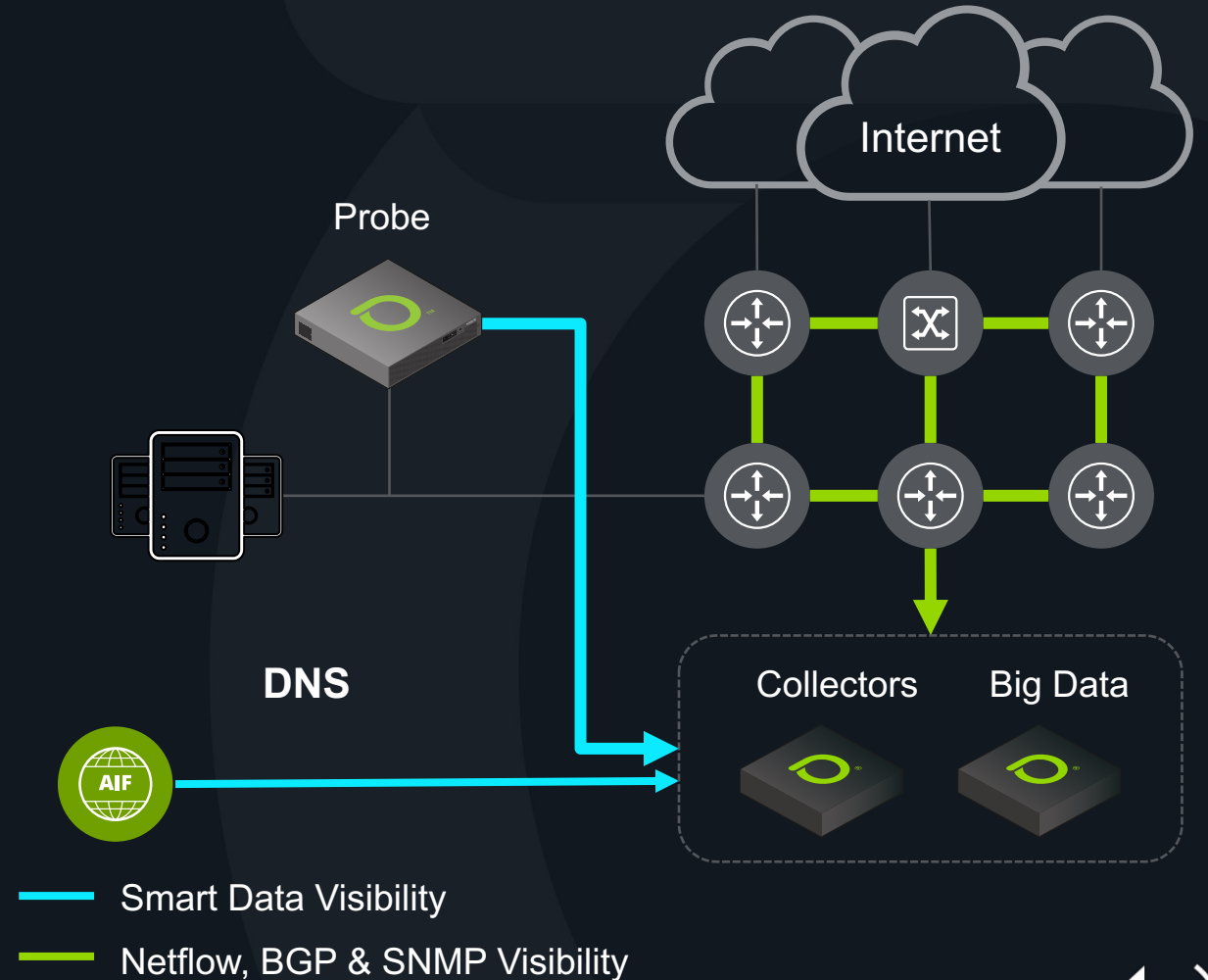
## Flow Telemetry and Enrichment - Missing Link

- We mentioned basic enrichment, SNMP and BGP
- We all know OTT applications and CDNs, are a challenge to simplistic views based just on fixed ranges of IP and ASNs
  - Dynamic learned ranges and etc, help
  - Not with caching, that is usually not something others know
- **In the Beginning, there was the FQDN !**
  - Humans don't memorize IP (not regular ones)
  - Before you stream a video, you resolve it thru...DNS
  - Why not ENRICHMENT using that preamble dialog, adding that insight to the netflow collected info ?





The same record collected with netflow, can be enriched by capturing the client DNS requests and making sure the 'OTT name' (usually wildcarded) can be properly attributed to that flow, during the TTL. Is not a different netflow record, but you can add 'external knowledge'



# Thank You.

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