

PingThings

# STTP at ComEd

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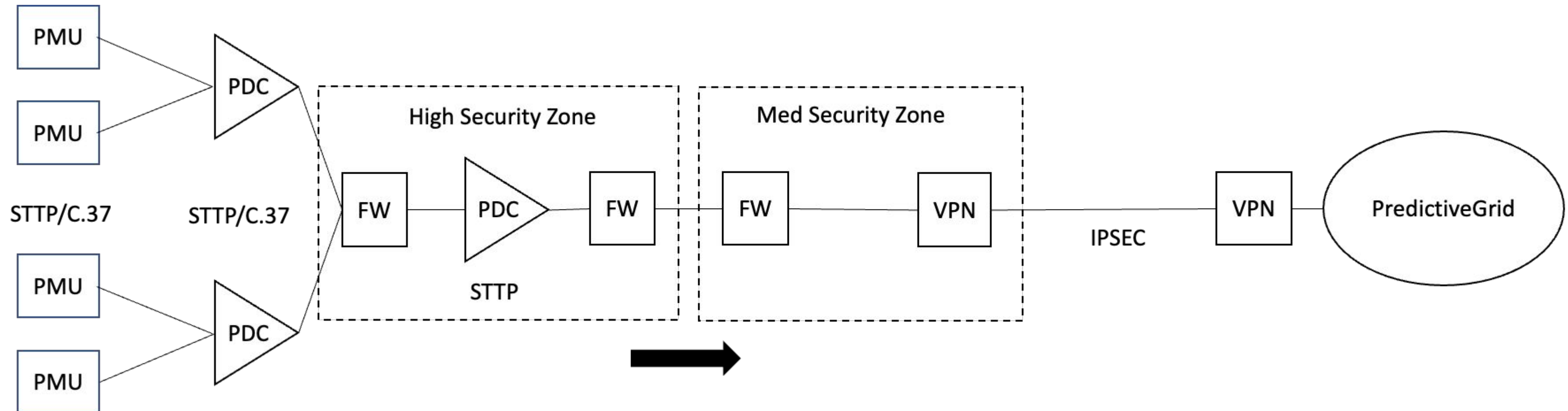
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# Streaming Telemetry Transport Protocol

- STTP, IEEE 2664, first introduced in 2018
- Seen as natural replacement/evolution of IEEE C37.118
  - Packet vs Frame based protocol
- Secure, scalable, reliable, flexible, network based
  - TLS, TCP/IP, lossless compression, metadata
  - Millions of point-per-second
- Protocol of choice for ComEd Distribution PMU deployment to PredictiveGrid™
  - Hundreds of sensors and growing

# Common Cloud-based Deployment



- PMUs in the field aggregated by one or more PDCs
- Top level PDC is typically hosted in a high security zone – e.g. ops center
  - Supports mission-critical, real-time apps/services
  - Employs a Reverse STTP client to connect to PredictiveGrid
  - Caches up to 30 days of data as Comtrade files in case of network failures/isolation
- There are dozens apps/services outside the secure zone that need this data

# Considerations

- Going high-to-low (security) can be challenging
  - Employ Reverse STTP clients + Firewalls + IPSEC VPNs
  - Must deal with problem of “reaching into high security to restart streaming
- Need to ensure reliable data delivery
  - Use TCP NOT UDP
  - Cache data on PDC during network failures and lockdowns (Comtrade)
- Save your data!
  - Information is today’s oil. You spill it you lose it (bit bucket)
  - Predictive analytics needs historical data for training and model validation
  - Very cost-effective, tiered storage services available
- And plan ahead!
  - Fairly simple, straightforward architecture
  - Lots of stakeholders + long review/approval cycles + support issues
  - Find a good Project Manager and be kind to him/her