

DSC Exporter

Lightweight & Realtime Observability of DSC Data

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DSC and its legacy

DSC

„... DSC uses distributed system for collecting, visualizing, and archiving DNS measurements...”

Collector(s)

- Distributed instances for collecting and processing of DNS data
 - processing of captured DNS raw data into unified DSC output (.xml)
 - sync of processed output (.xml) towards presenter

Presenter

- Centralized instance for visualization and archiving of DNS data
 - no DNS raw data processing
 - queued import of pre-processed DNS data



Requirements & Motivation

Why distributed?

- Cloud computing era leads to high flexibility → more nodes with one click
- Nodes vs. Observability vs. Cybersecurity → more nodes with complex networking and high safety & security & sustainable awareness
- Easy to scale and multi-tenancy for large anycast DNS services
- Since performance DNS servers upload (raw) data anyways, collection of processed DSC output adds less load

Whats needed?

- Easy & fast setup
 - easy install & scale
- Open source stacking
 - living community support
- Adaptive observability & visualization
 - Prometheus, Grafana etc.
- Multi-Tenancy
 - anycast customer isolation



Presenter vs. Exporter vs. Datatool

Presenter

- Visualization & archiving of DSC data
 - integrated front-end for visualization
 - attached text file database for archiving (.dat)

Exporter

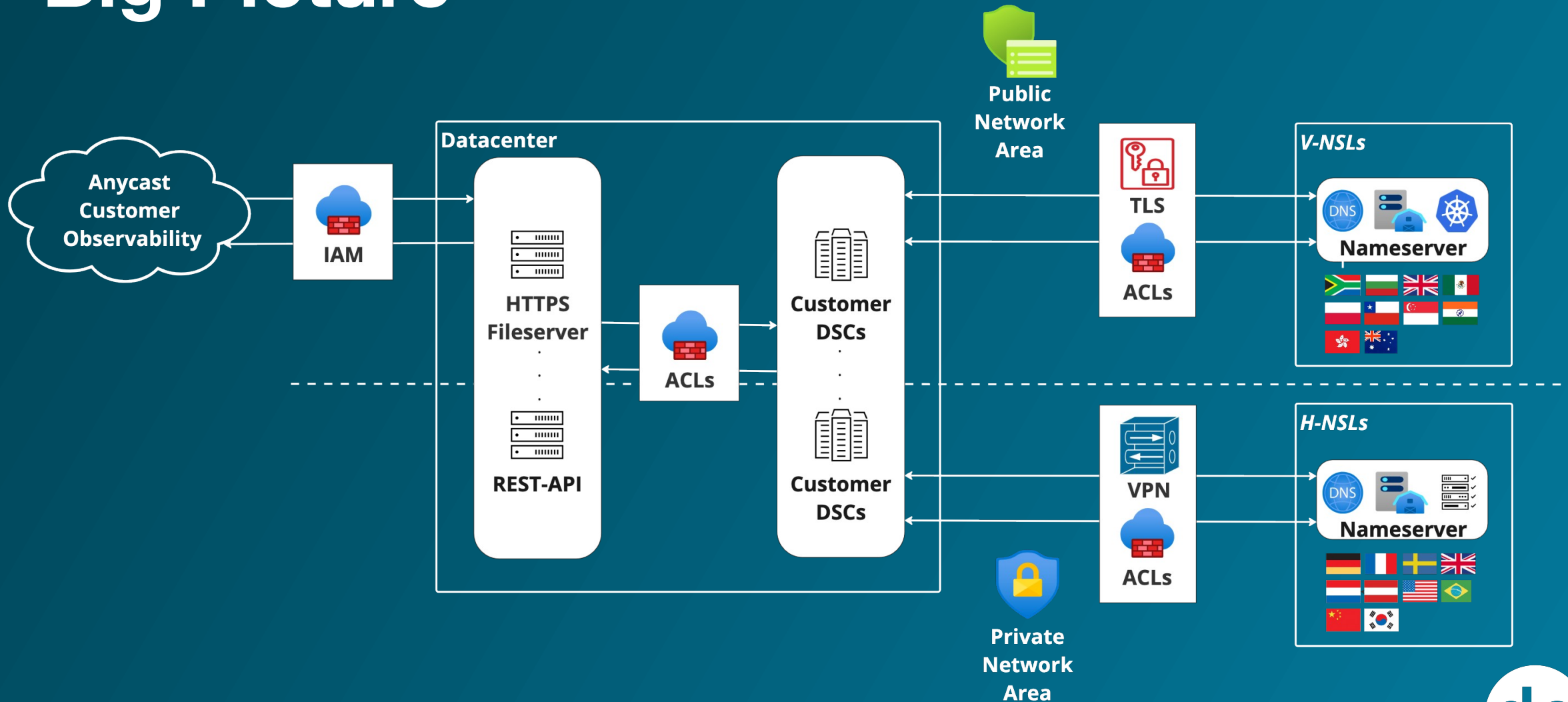
- Real-Time export of DSC data as metrics
 - REST API and multiprocess based service architecture
 - flexible scraping and visualization by existing observability frameworks (i.e. prometheus + grafana)

Datatool

- Collection of scripts for DSC data import/export
 - no front-end/api → just pure data processing
 - cyclic import of processed DSC data into various datasources (i.e. influxdb)

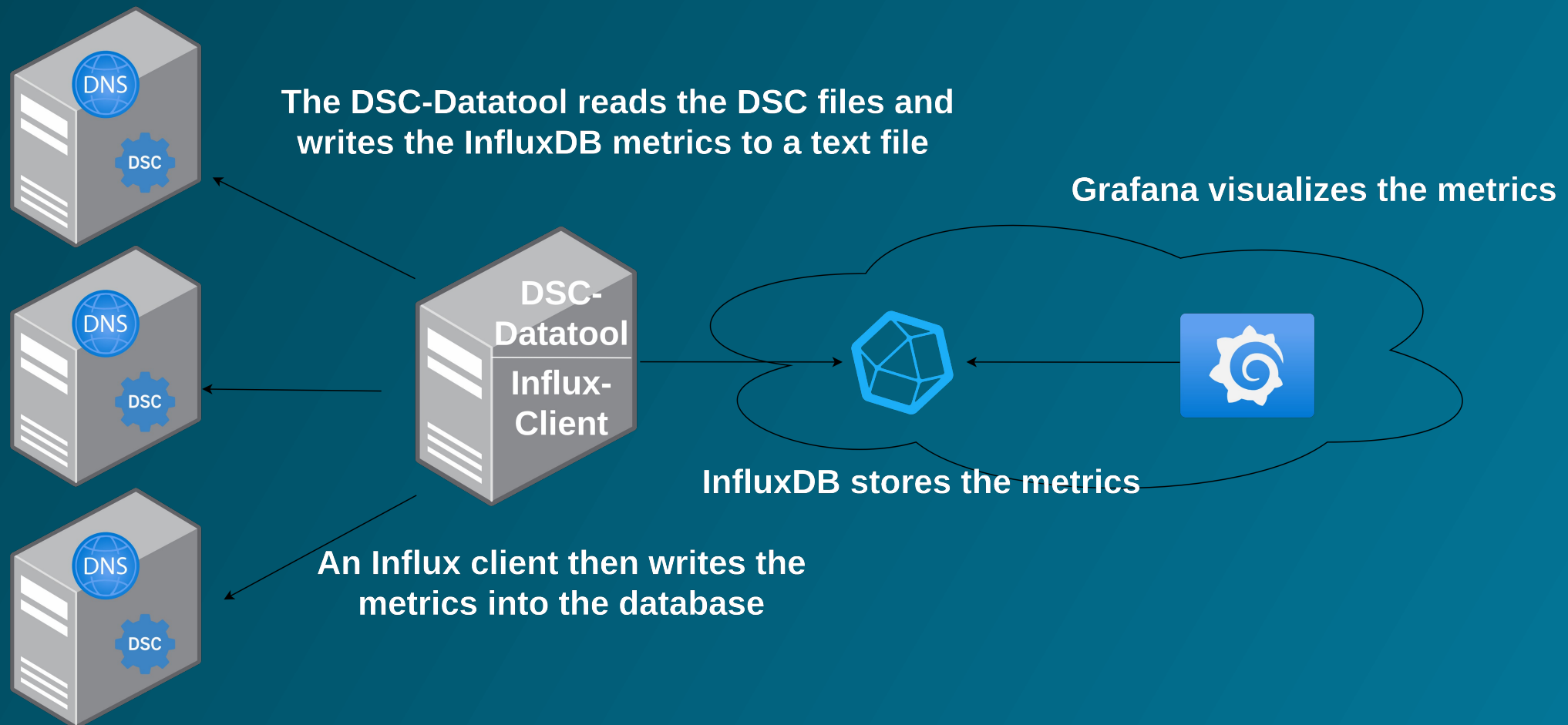


Big Picture



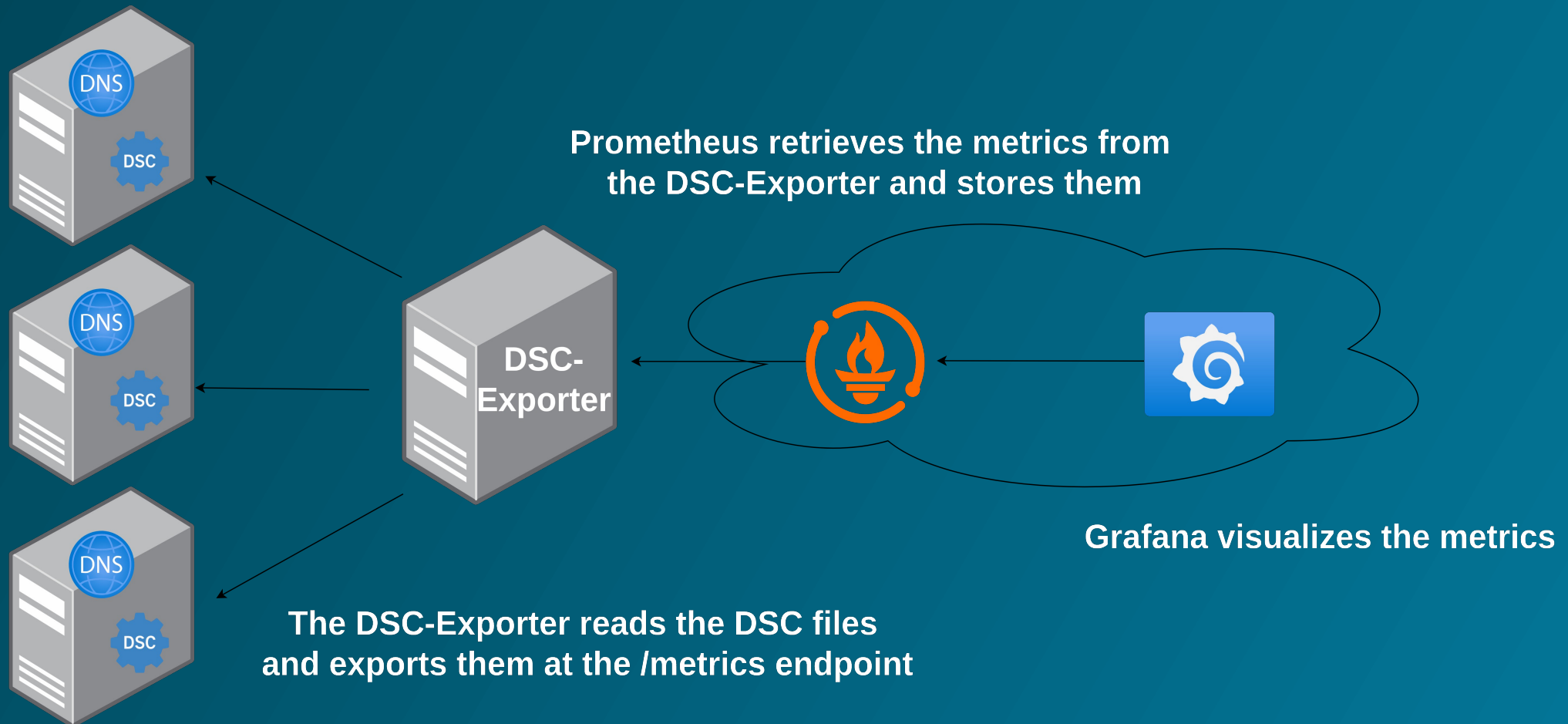
Datatool

The DSC server retrieves the DSC files from the name servers

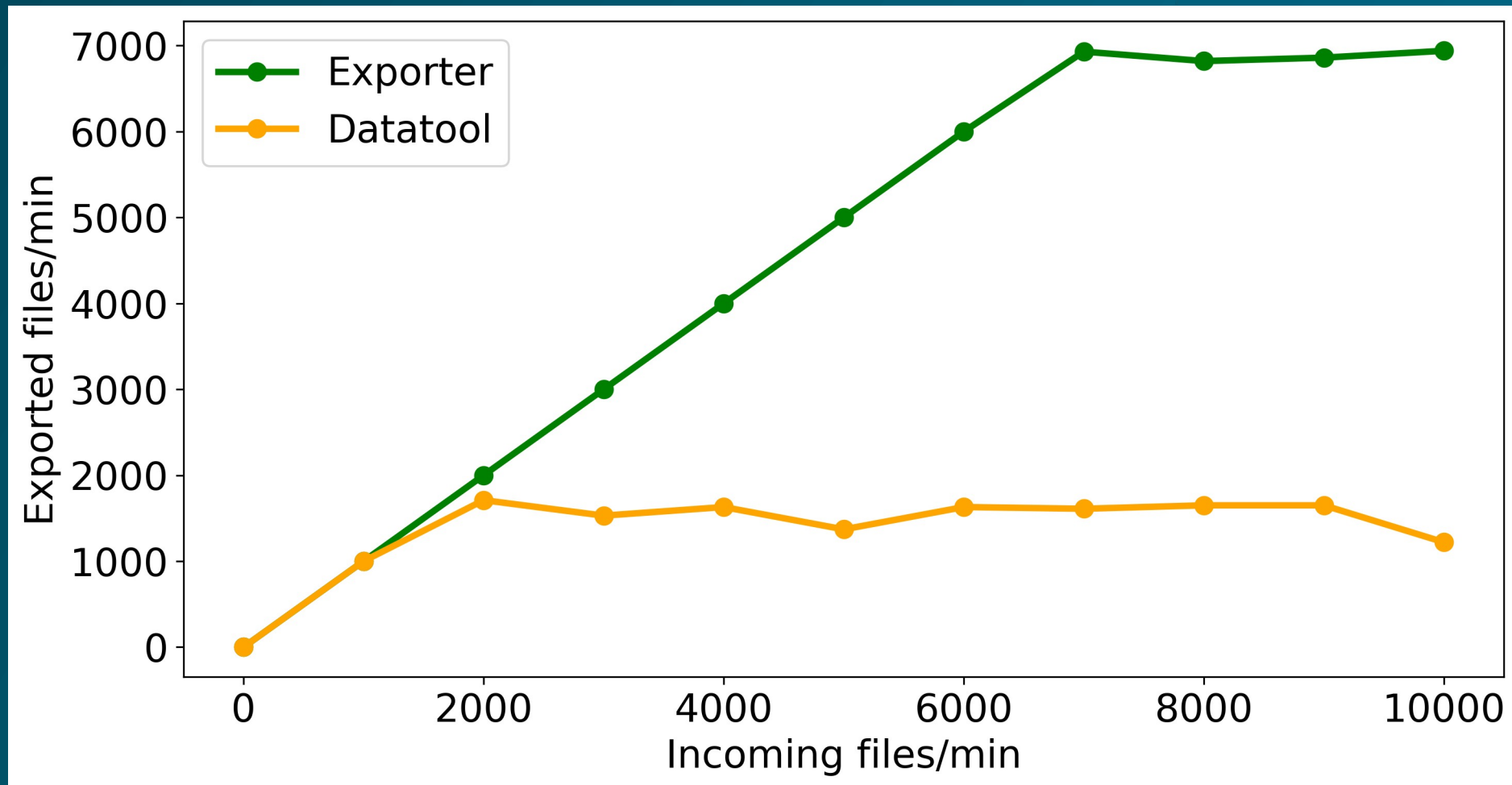


Exporter

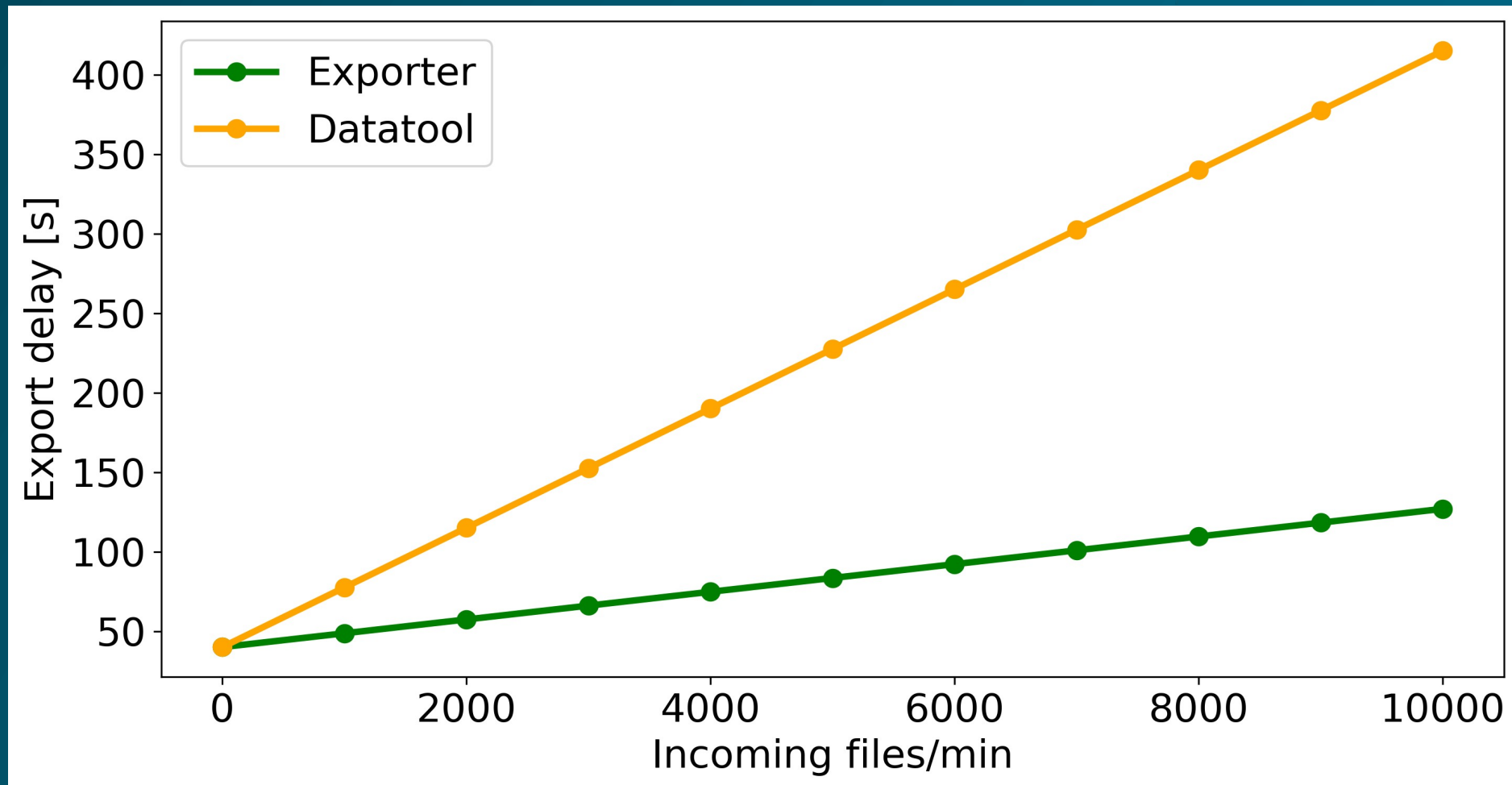
The DSC server retrieves the DSC files from the name servers



Performance

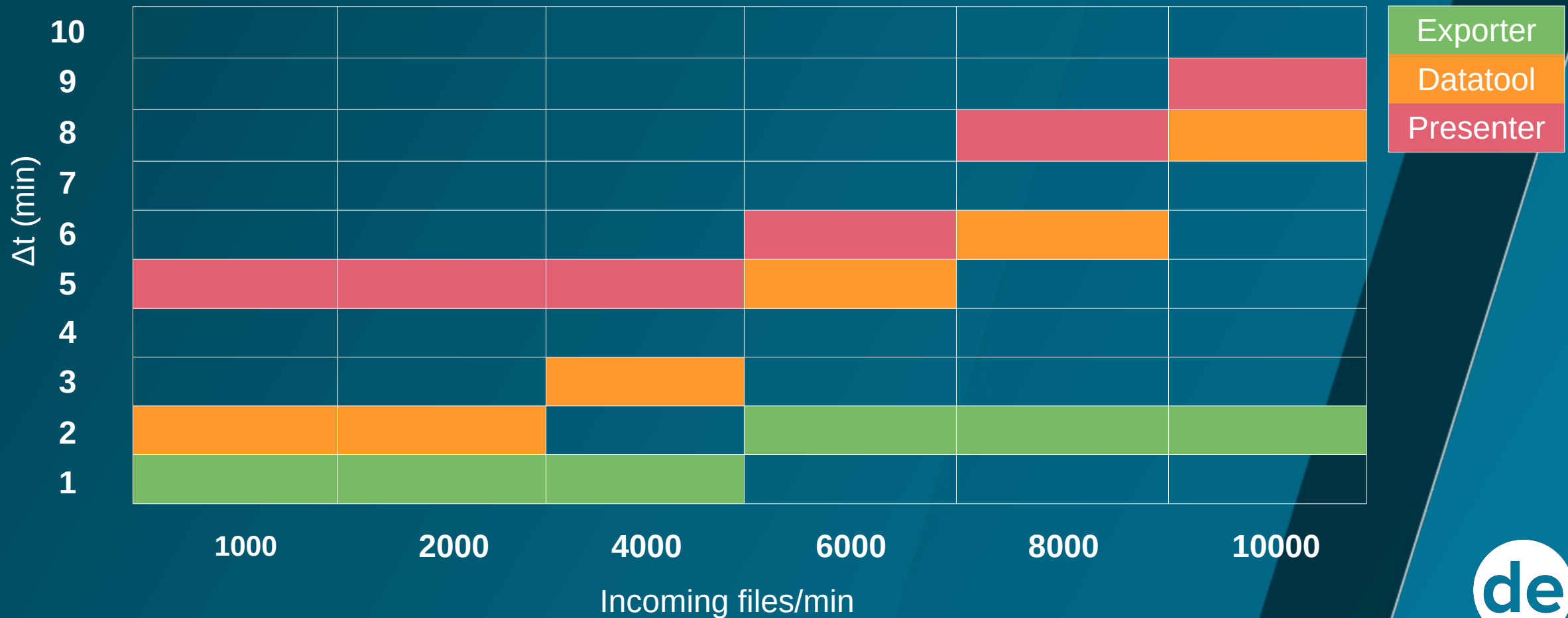


Realtime



Comparison

Δt : delay between collector(s) output until visualization appearance



Conclusion

Which solution fits better?

- Trade off between....
 - processing performance
 - long term archiving
 - customer scalability
 - realtime analysis
 - community support

Capability	Stack		
	Presenter	Exporter	Datatool
Performance	😊😊	😊😊😊	😊
Scalability	😊😊	😊😊😊	😊😊😊
Realtime	😊	😊😊😊	😊😊
Archiving	😊😊😊	😊	😊😊😊
Open Source	😊😊😊	😊😊😊	😊😊😊

Which solution to choose?

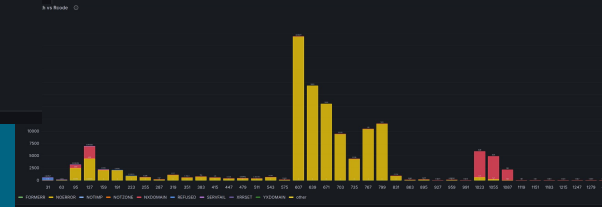
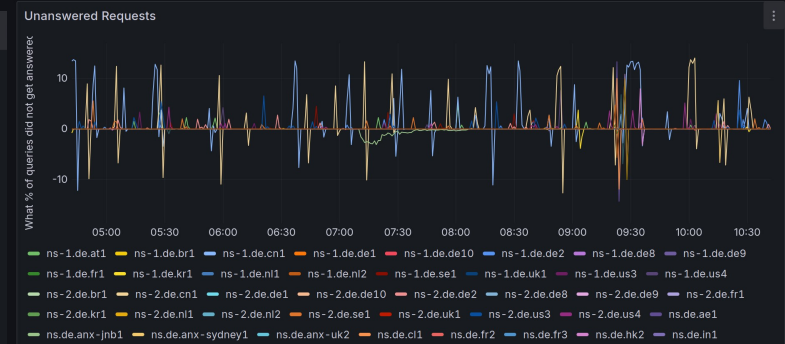
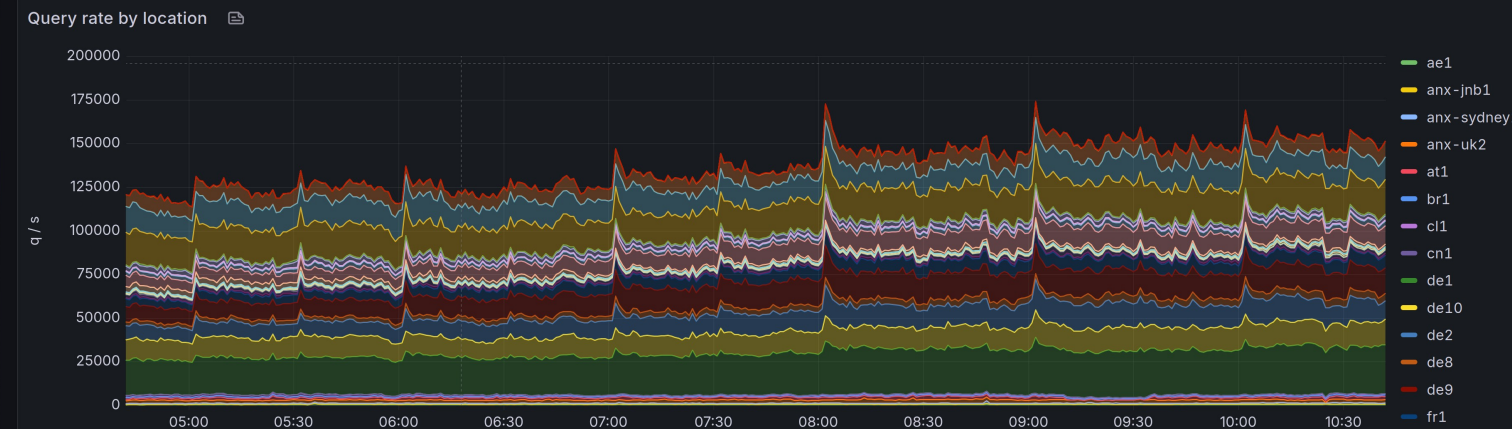
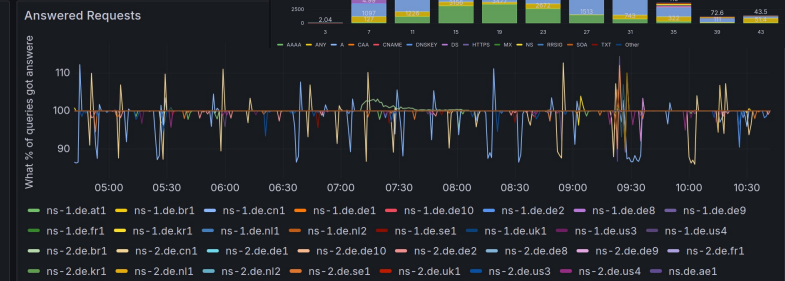
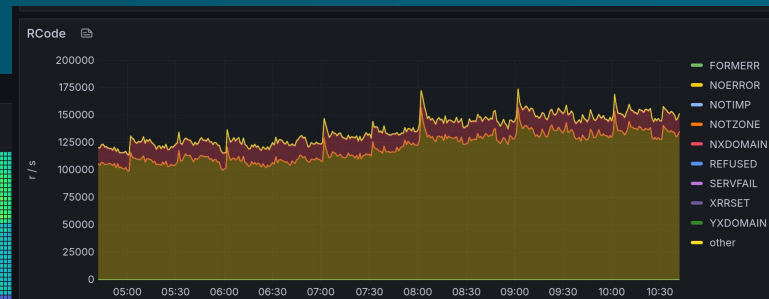
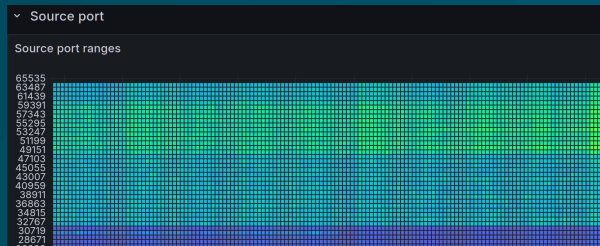
- High performance & realtime capability → Exporter
 - huge number of parallel DSC files from multiple nodes
- High scalability & archiving → Datatool
 - scalable and solid archiving

Hunger for more?

Check it out



<https://github.com/DENICEG/dscexporter>



Q&A



THANK YOU!

