SEL SynchroWAVe Archive Presentation

NASPI Data and Archive Workshop
4/15/2019

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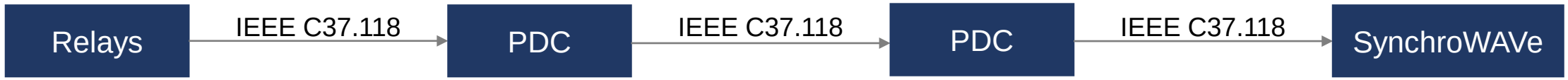
Schweitzer Engineering Laboratories

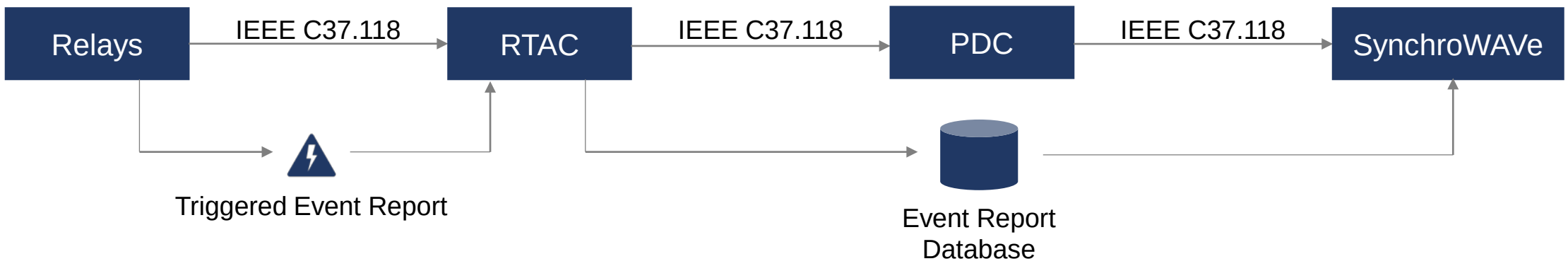
Time-Series Network Architecture

Traditional Synchrophasor Architecture



Time-Series Network Architecture

Time-Series Architecture



Time-Series Network Architecture

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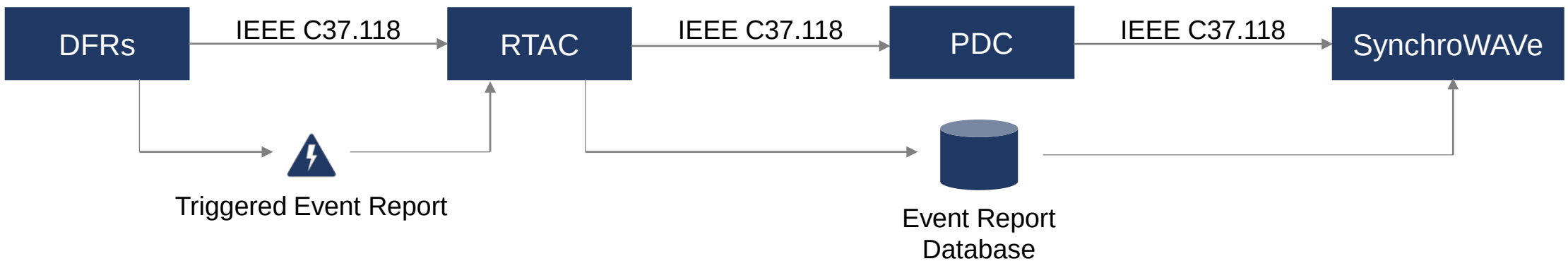
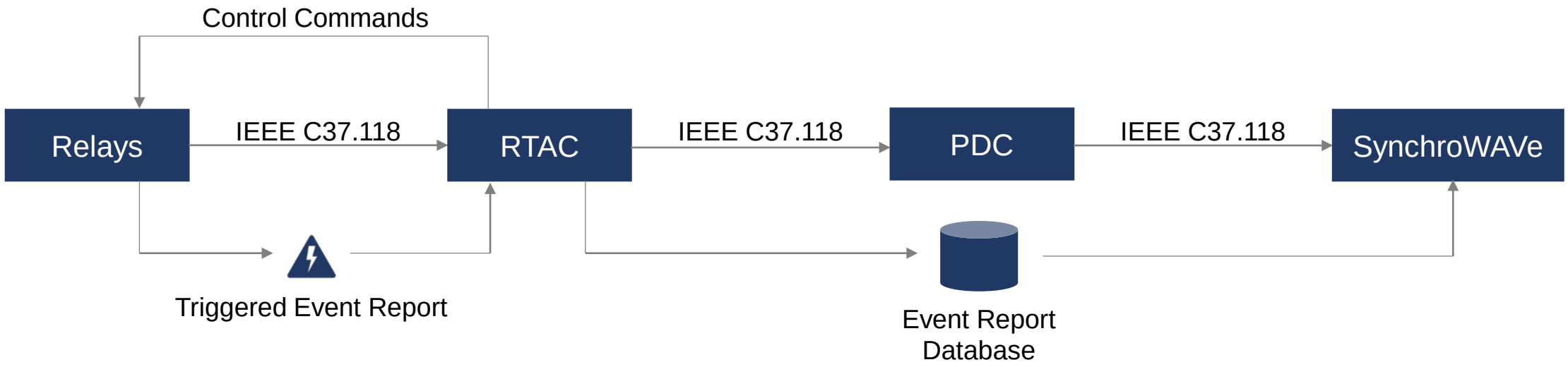


Time-Series Network Architecture

Time-Series Architecture with Local Control



Time-Series Network Architecture

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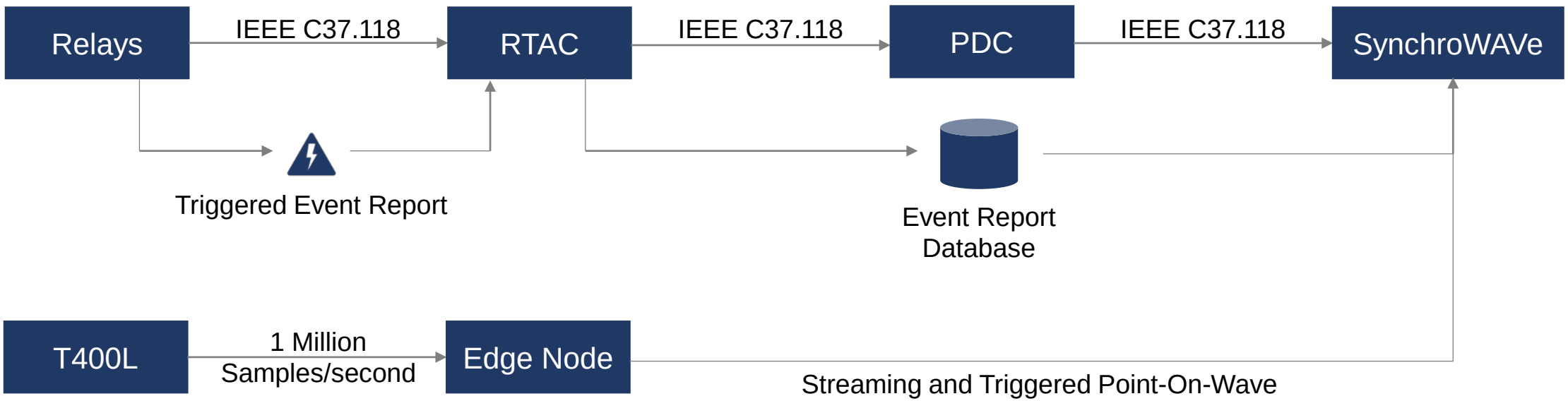
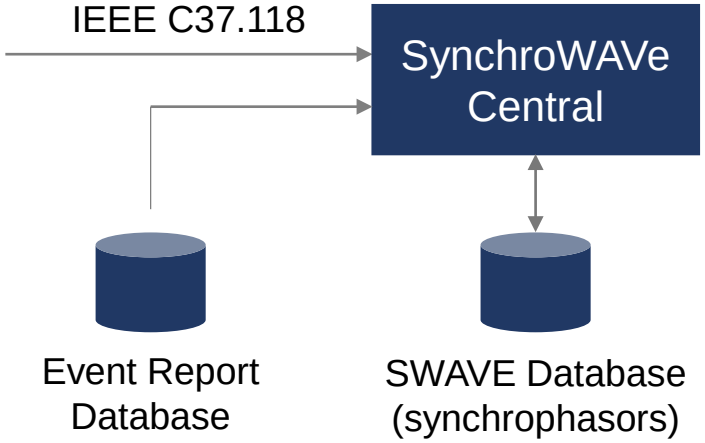
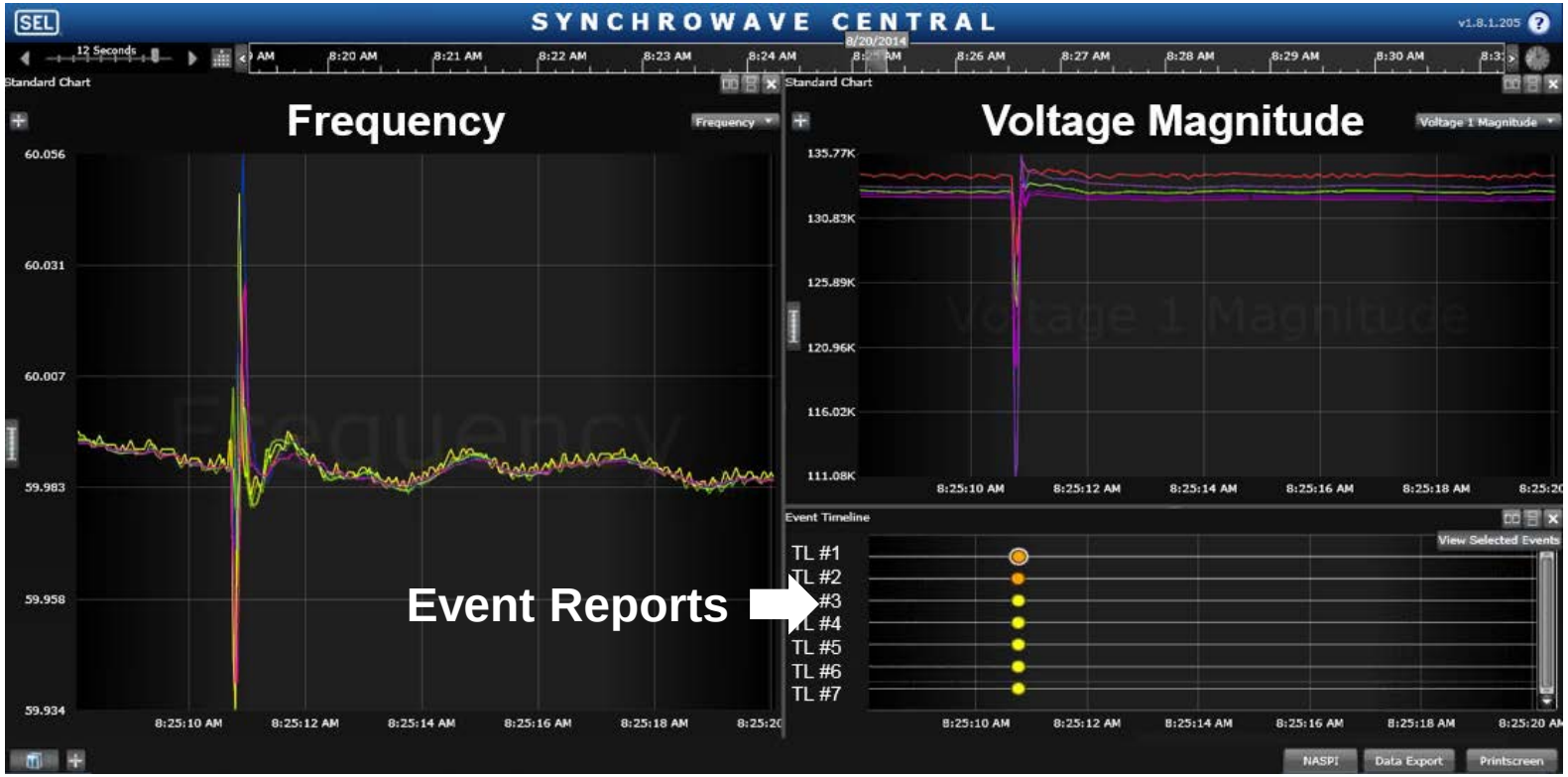
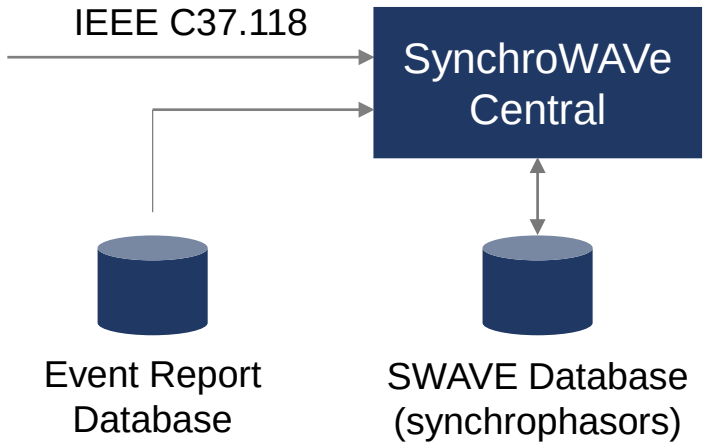


SynchroWAVe Central Architecture





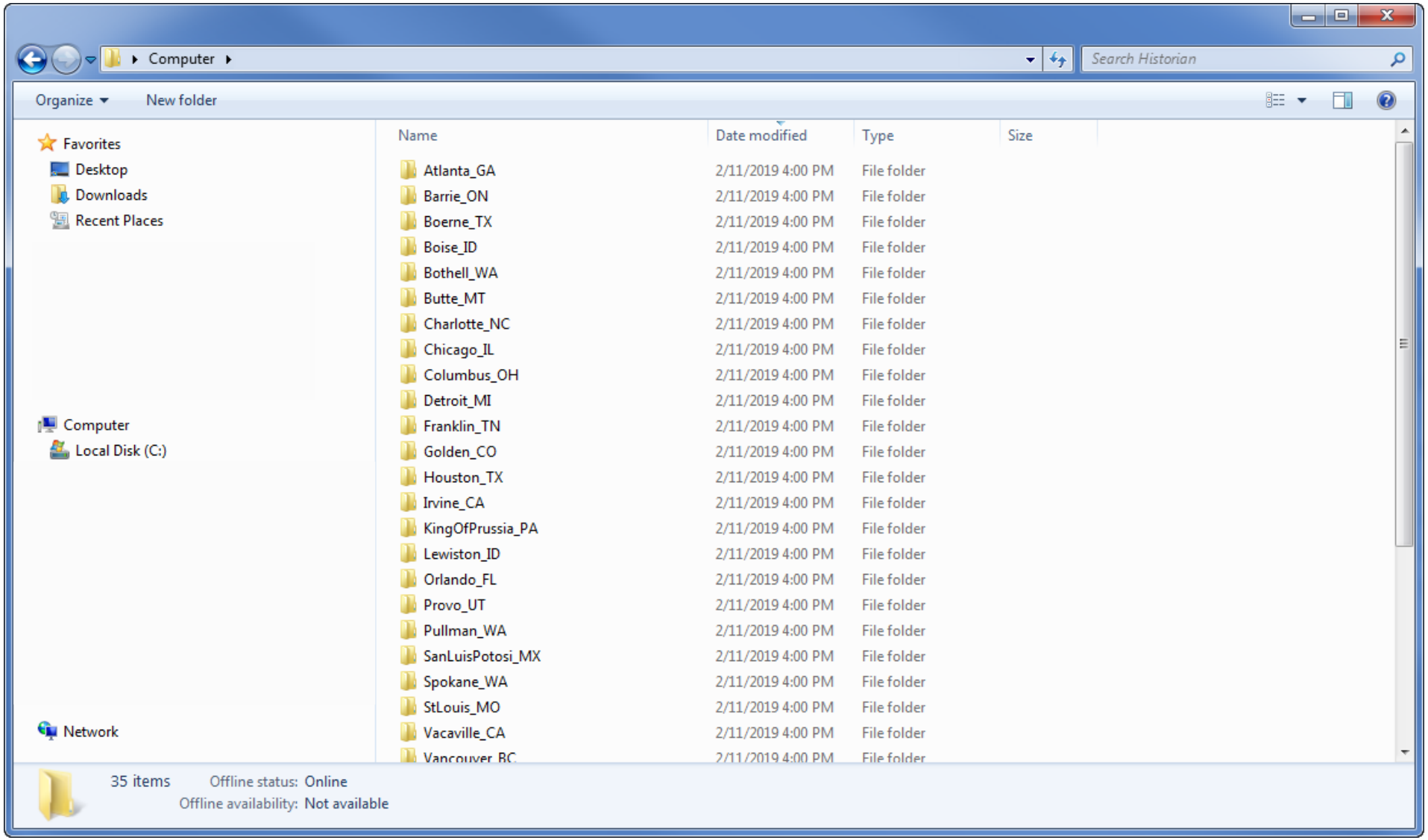
SynchroWAVe SWAVE Database



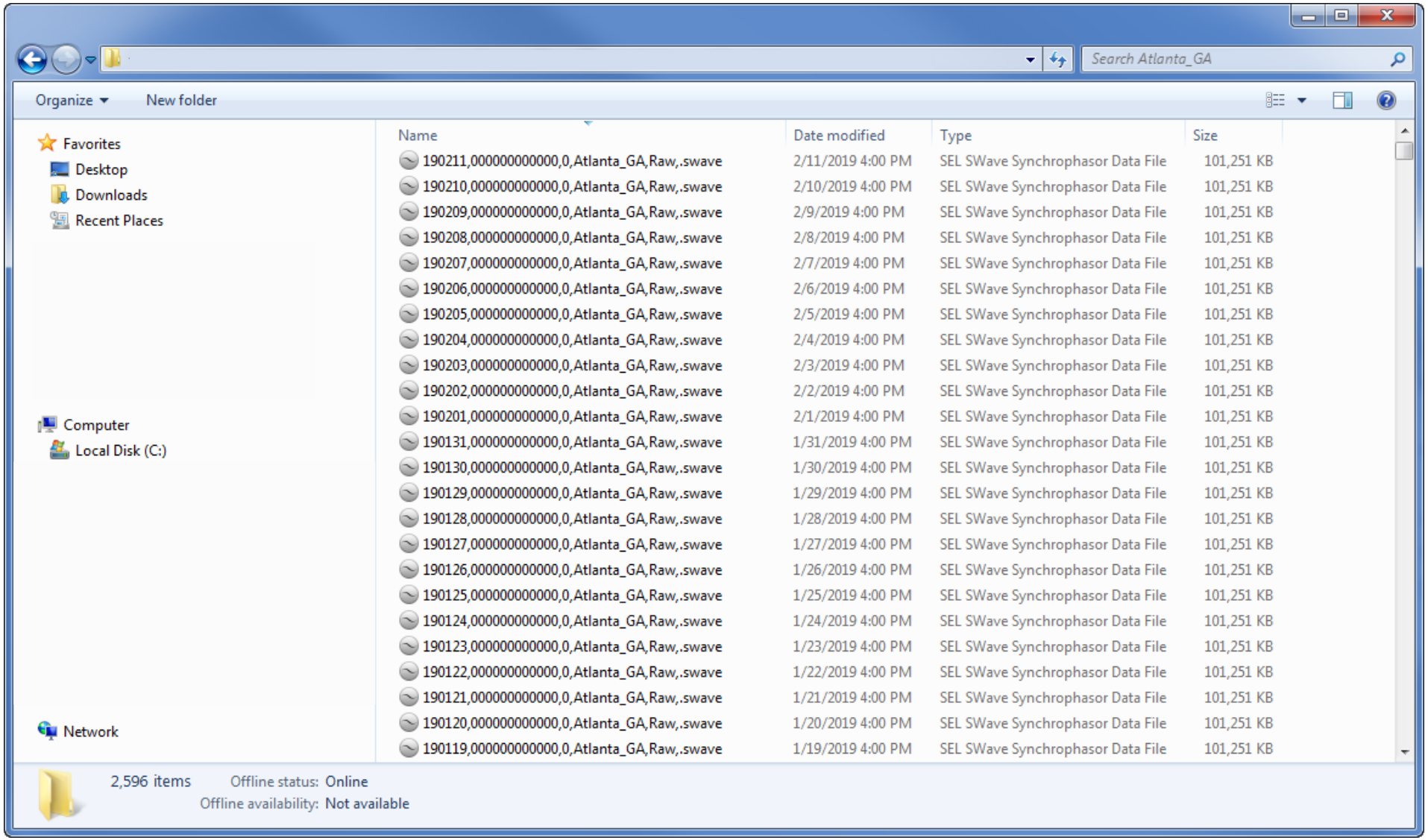
SWAVE Database Features:

- Time-series database.
- File/Folder architecture (Local, SAN, NAS)
- Simple management.
- 1 file per day, per PMU.
- Raw file viewer.
- Max/Min Index for fast 1 second to 1 year zoom.

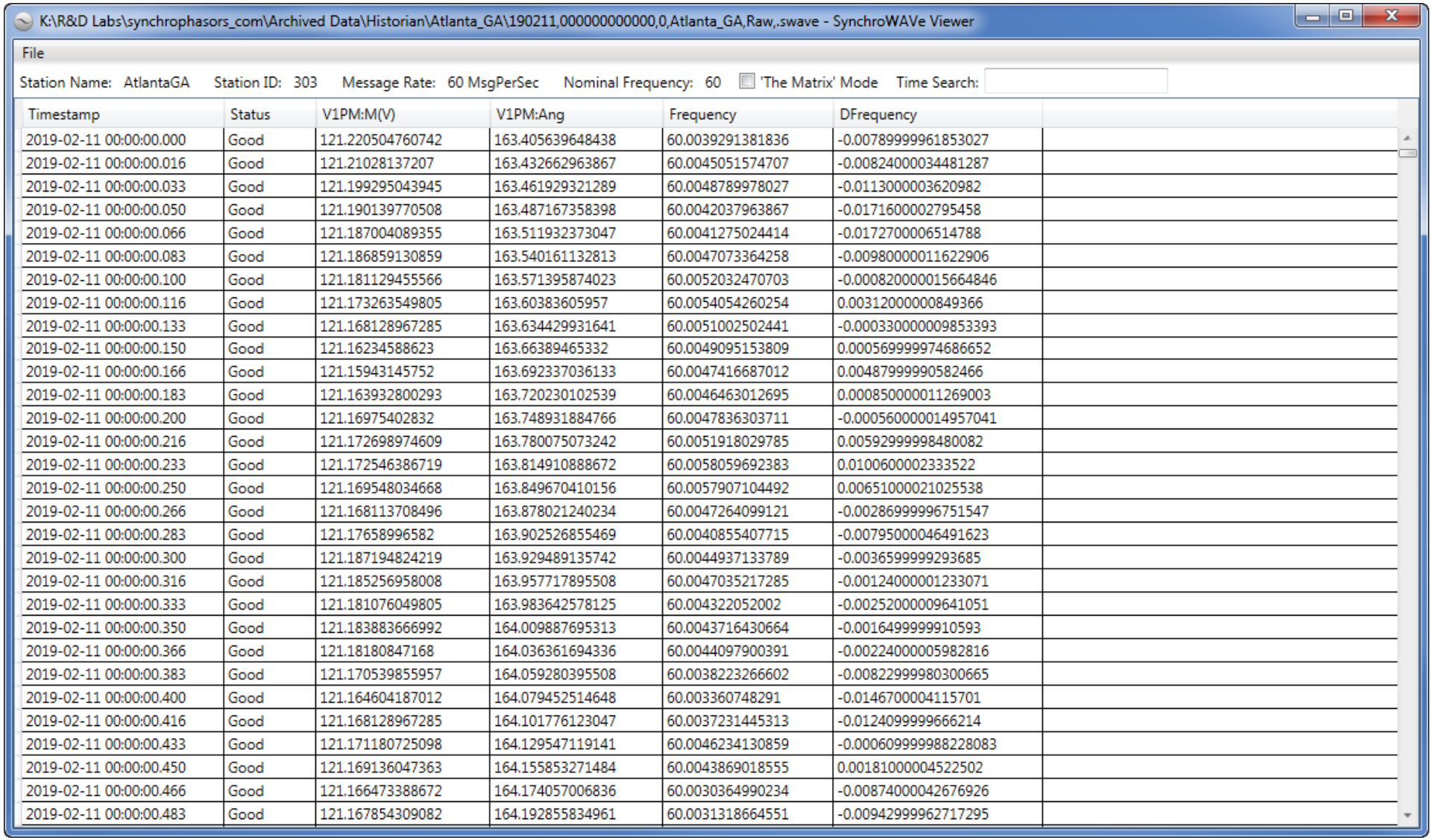
SynchroWAVe SWAVE Database Example



SynchroWAVe SWAVE Database Example



SynchroWAVe SWAVE Database Example


K:\R&D Labs\synchrophasors_com\Archived Data\Historian\Atlanta_GA\190211,000000000000,0,Atlanta_GA,Raw,.swave - SynchroWAVe Viewer

File

Station Name: AtlantaGA Station ID: 303 Message Rate: 60 MsgPerSec Nominal Frequency: 60 'The Matrix' Mode Time Search:

Timestamp	Status	V1PM:M(V)	V1PM:Ang	Frequency	DFrequency
2019-02-11 00:00:00.000	Good	121.220504760742	163.405639648438	60.0039291381836	-0.00789999961853027
2019-02-11 00:00:00.016	Good	121.21028137207	163.432662963867	60.0045051574707	-0.00824000034481287
2019-02-11 00:00:00.033	Good	121.199295043945	163.461929321289	60.0048789978027	-0.0113000003620982
2019-02-11 00:00:00.050	Good	121.190139770508	163.487167358398	60.0042037963867	-0.0171600002795458
2019-02-11 00:00:00.066	Good	121.187004089355	163.511932373047	60.0041275024414	-0.0172700006514788
2019-02-11 00:00:00.083	Good	121.186859130859	163.540161132813	60.0047073364258	-0.00980000011622906
2019-02-11 00:00:00.100	Good	121.181129455566	163.571395874023	60.0052032470703	-0.000820000015664846
2019-02-11 00:00:00.116	Good	121.173263549805	163.60383605957	60.0054054260254	0.00312000000849366
2019-02-11 00:00:00.133	Good	121.168128967285	163.634429931641	60.0051002502441	-0.000330000009853393
2019-02-11 00:00:00.150	Good	121.16234588623	163.66389465332	60.0049095153809	0.000569999974686652
2019-02-11 00:00:00.166	Good	121.15943145752	163.692337036133	60.0047416687012	0.00487999990582466
2019-02-11 00:00:00.183	Good	121.163932800293	163.720230102539	60.0046463012695	0.000850000011269003
2019-02-11 00:00:00.200	Good	121.16975402832	163.748931884766	60.0047836303711	-0.000560000014957041
2019-02-11 00:00:00.216	Good	121.172698974609	163.780075073242	60.0051918029785	0.00592999998480082
2019-02-11 00:00:00.233	Good	121.172546386719	163.814910888672	60.0058059692383	0.0100600002333522
2019-02-11 00:00:00.250	Good	121.169548034668	163.849670410156	60.0057907104492	0.00651000021025538
2019-02-11 00:00:00.266	Good	121.168113708496	163.878021240234	60.0047264099121	-0.00286999996751547
2019-02-11 00:00:00.283	Good	121.17658996582	163.902526855469	60.0040855407715	-0.00795000046491623
2019-02-11 00:00:00.300	Good	121.187194824219	163.929489135742	60.0044937133789	-0.0036599999293685
2019-02-11 00:00:00.316	Good	121.185256958008	163.957717895508	60.0047035217285	-0.00124000001233071
2019-02-11 00:00:00.333	Good	121.181076049805	163.983642578125	60.004322052002	-0.00252000009641051
2019-02-11 00:00:00.350	Good	121.183883666992	164.009887695313	60.0043716430664	-0.0016499999910593
2019-02-11 00:00:00.366	Good	121.18180847168	164.036361694336	60.0044097900391	-0.00224000005982816
2019-02-11 00:00:00.383	Good	121.170539855957	164.059280395508	60.0038223266602	-0.00822999980300665
2019-02-11 00:00:00.400	Good	121.164604187012	164.079452514648	60.003360748291	-0.0146700004115701
2019-02-11 00:00:00.416	Good	121.168128967285	164.101776123047	60.0037231445313	-0.0124099999666214
2019-02-11 00:00:00.433	Good	121.171180725098	164.129547119141	60.0046234130859	-0.000609999988228083
2019-02-11 00:00:00.450	Good	121.169136047363	164.155853271484	60.0043869018555	0.00181000004522502
2019-02-11 00:00:00.466	Good	121.166473388672	164.174057006836	60.0030364990234	-0.00874000042676926
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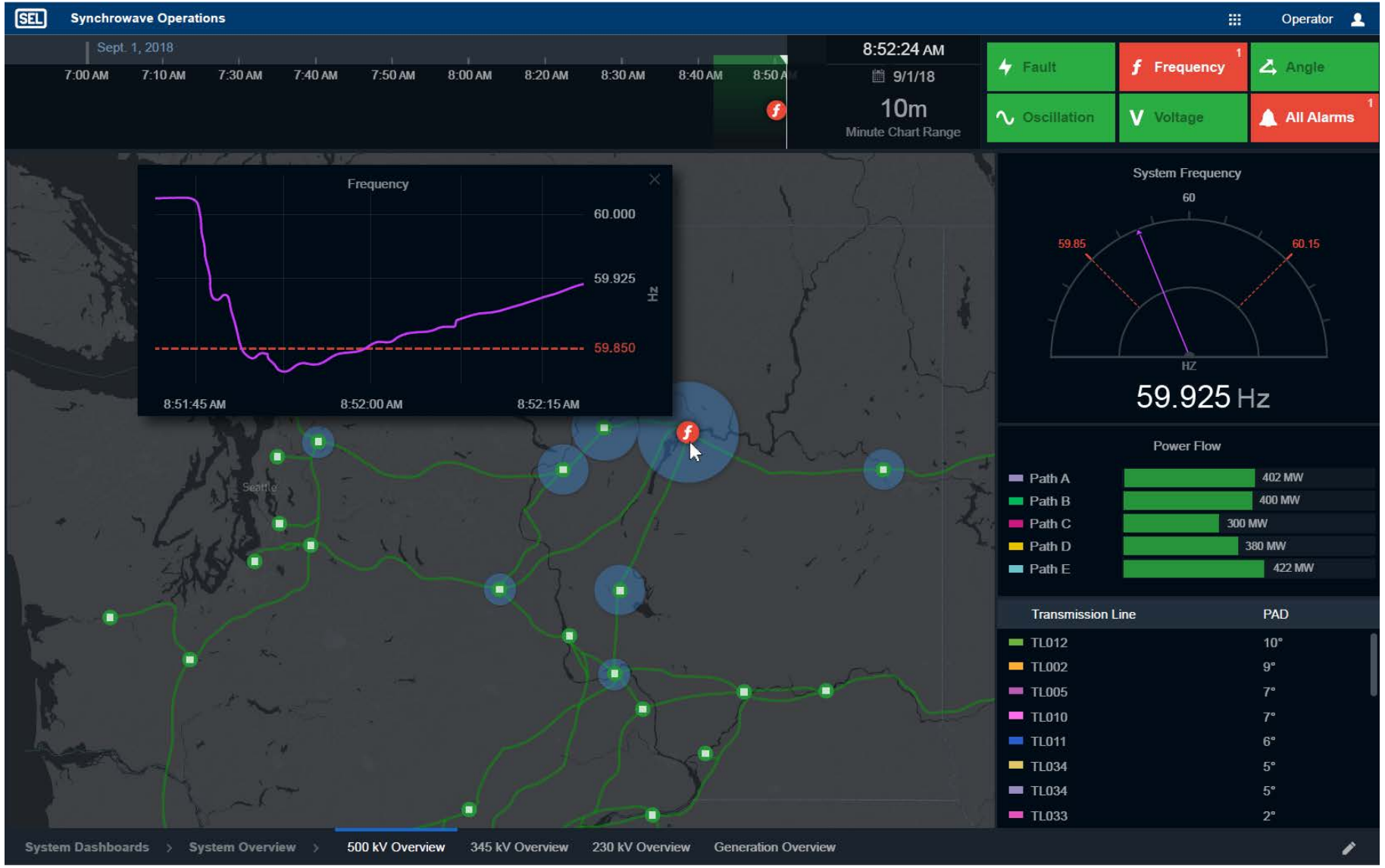
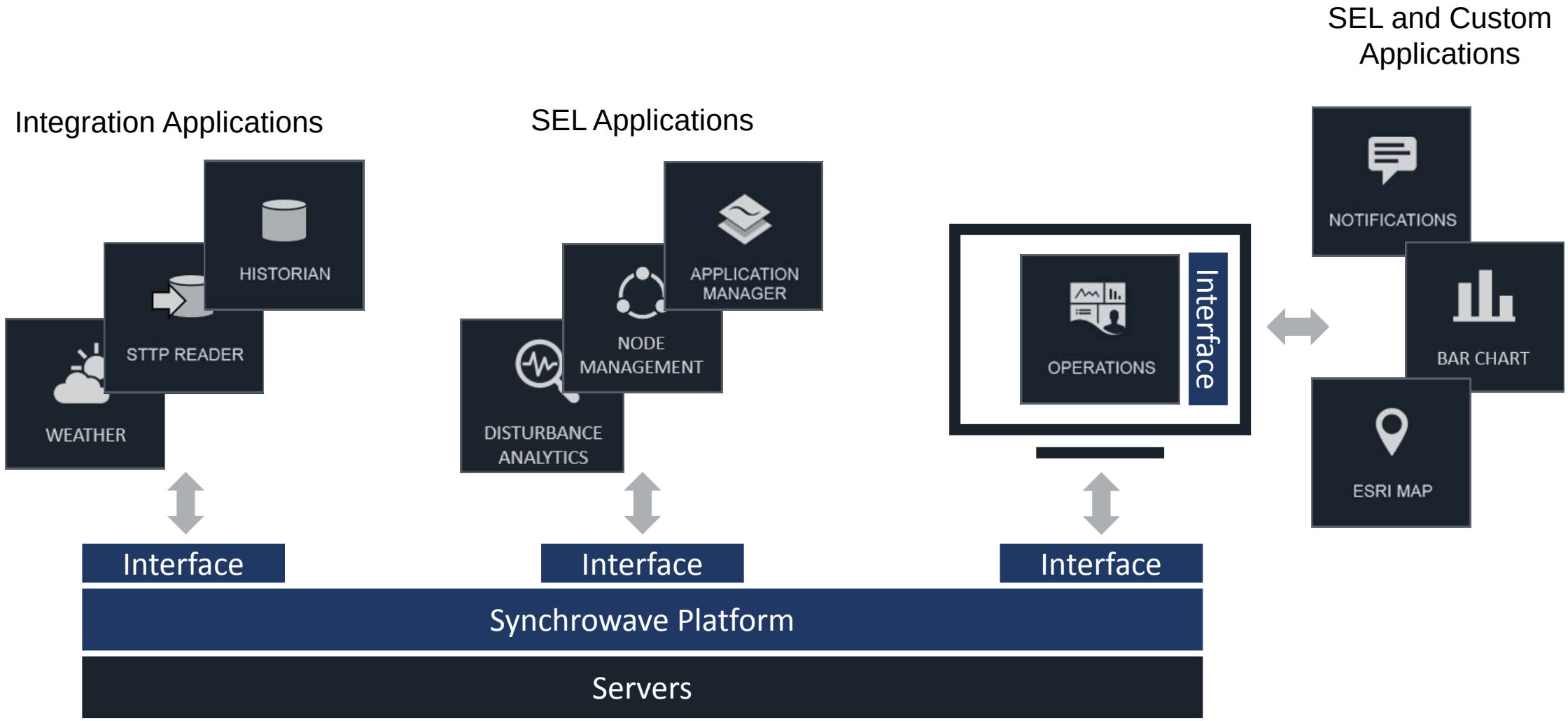
Synchrowave Platform

Power System Operations and Analytics

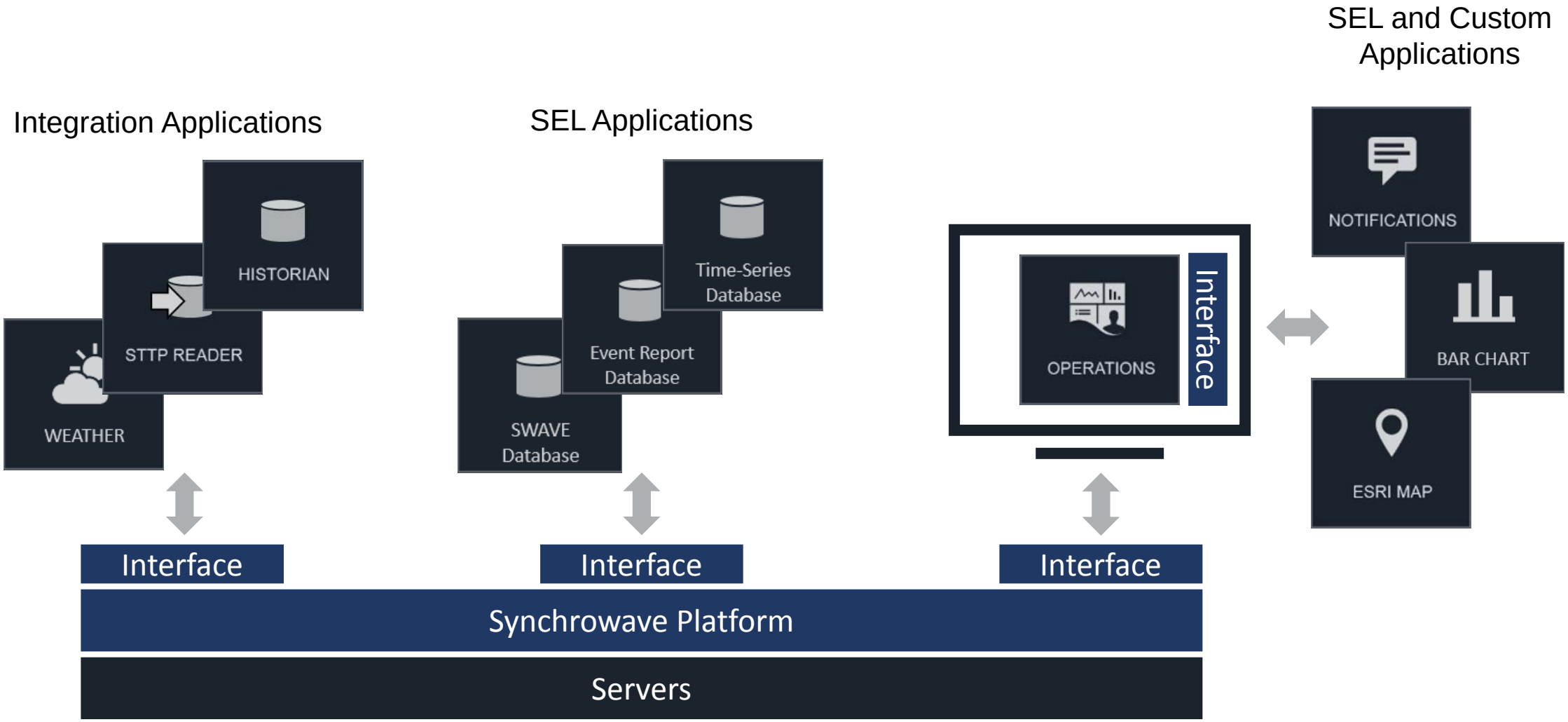


Open Application Platform

Develop, Integrate, Customize.



Integrate Multiple Database Applications



Thank You!