

NSF/IUCRC CAC PROJECT

INTEGRATED VISUALIZING, MONITORING, AND MANAGING HPC SYSTEMS

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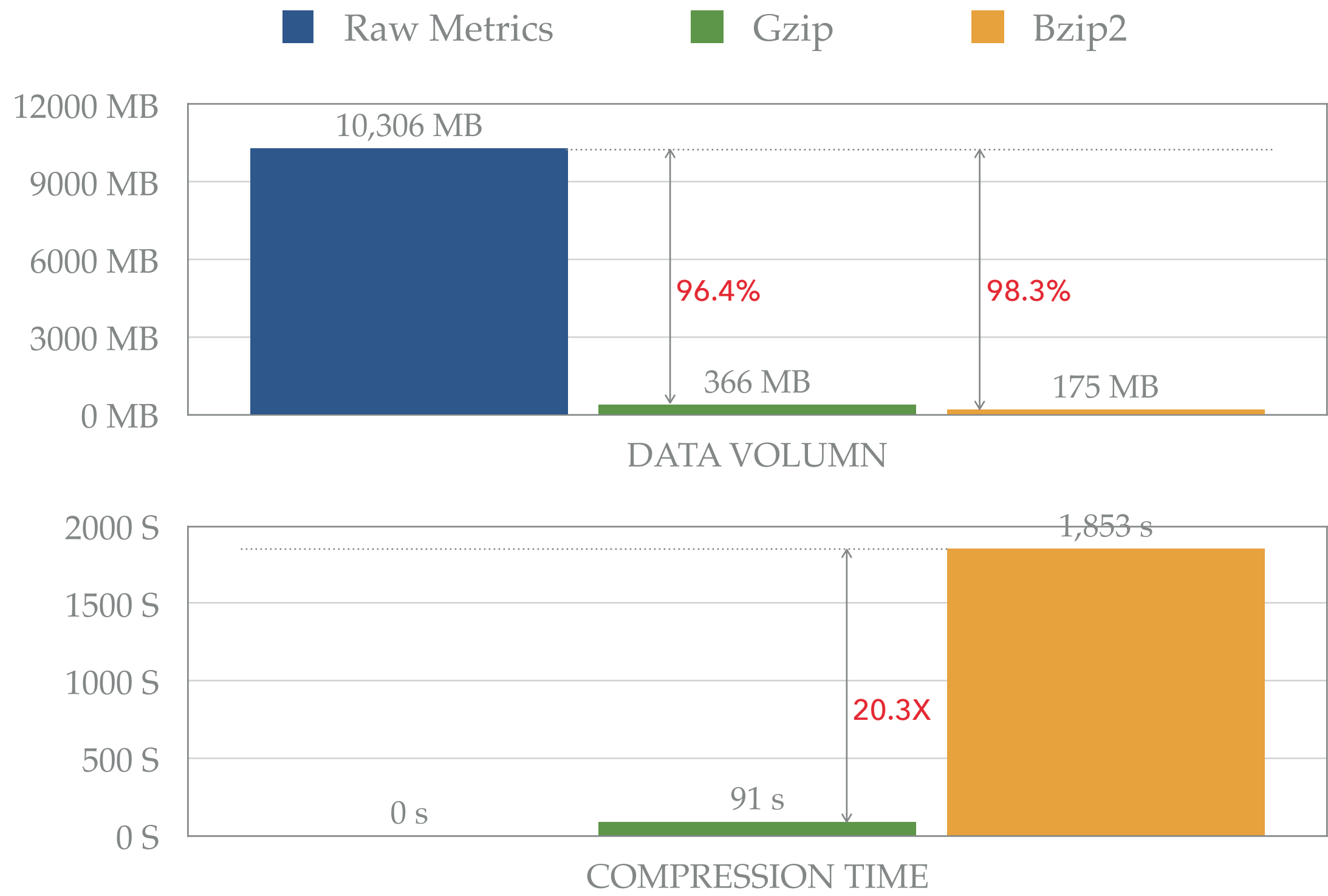
LAST MEETING

- ▶ Managing the growing amount of monitoring data.
 - ▶ Drop metrics that have values of 0, e.g., iousage, memoryusage, totalfanpower, etc.
 - ▶ NIC metrics (27 metrics)? e.g., txbytes, txbroadcast, etc.
 - ▶ Save old metrics (e.g., metrics collected one month ago) to zipped files.
 - ▶ JSON: save json format data while collecting metrics.
 - ▶ CSV: export csv files from TimescaleDB.

```
record = {  
  'Timestamp': time,  
  'Source': source,  
  'FQDD': fqdd,  
  'Value': value  
}
```

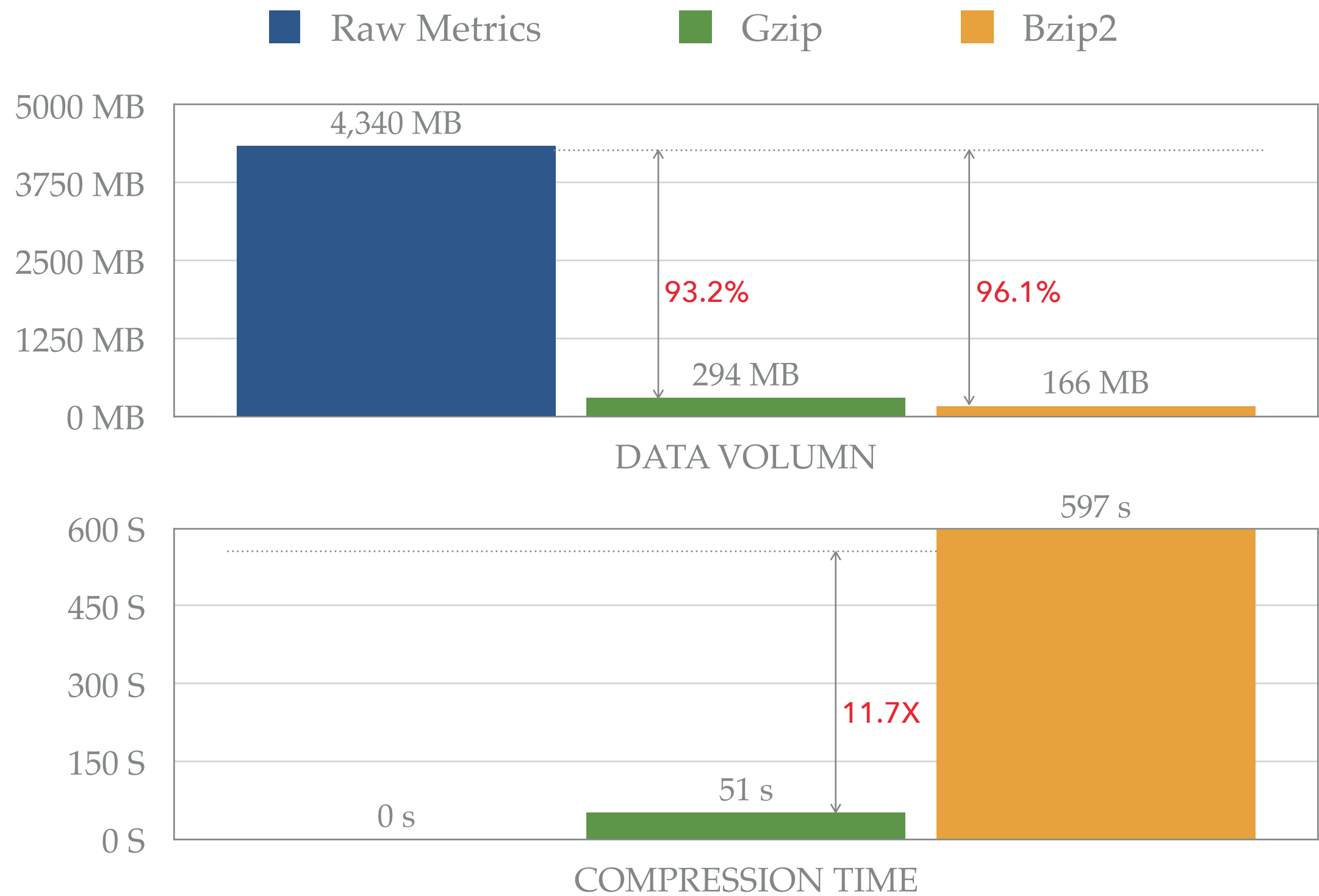
timestamp	nodeid	source	fqdd	value
2021-05-23 14:00:00-05	705	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	672	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	672
2021-05-23 14:00:00-05	697	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	692	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	551	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	658
2021-05-23 14:00:00-05	532	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	680	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	704	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	644
2021-05-23 14:00:00-05	505	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	602	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	674	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	322
2021-05-23 14:00:00-05	696	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	719	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	644
2021-05-23 14:00:00-05	670	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	574
2021-05-23 14:00:00-05	528	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	616
2021-05-23 14:00:00-05	603	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	713	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	710	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	336
2021-05-23 14:00:00-05	533	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	616
2021-05-23 14:00:00-05	728	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	687	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	725	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308
2021-05-23 14:00:00-05	700	rawsensor	IDRAC.Embedded.1#SystemBoardPwrConsumption	308

COMPRESS METRICS - JSON



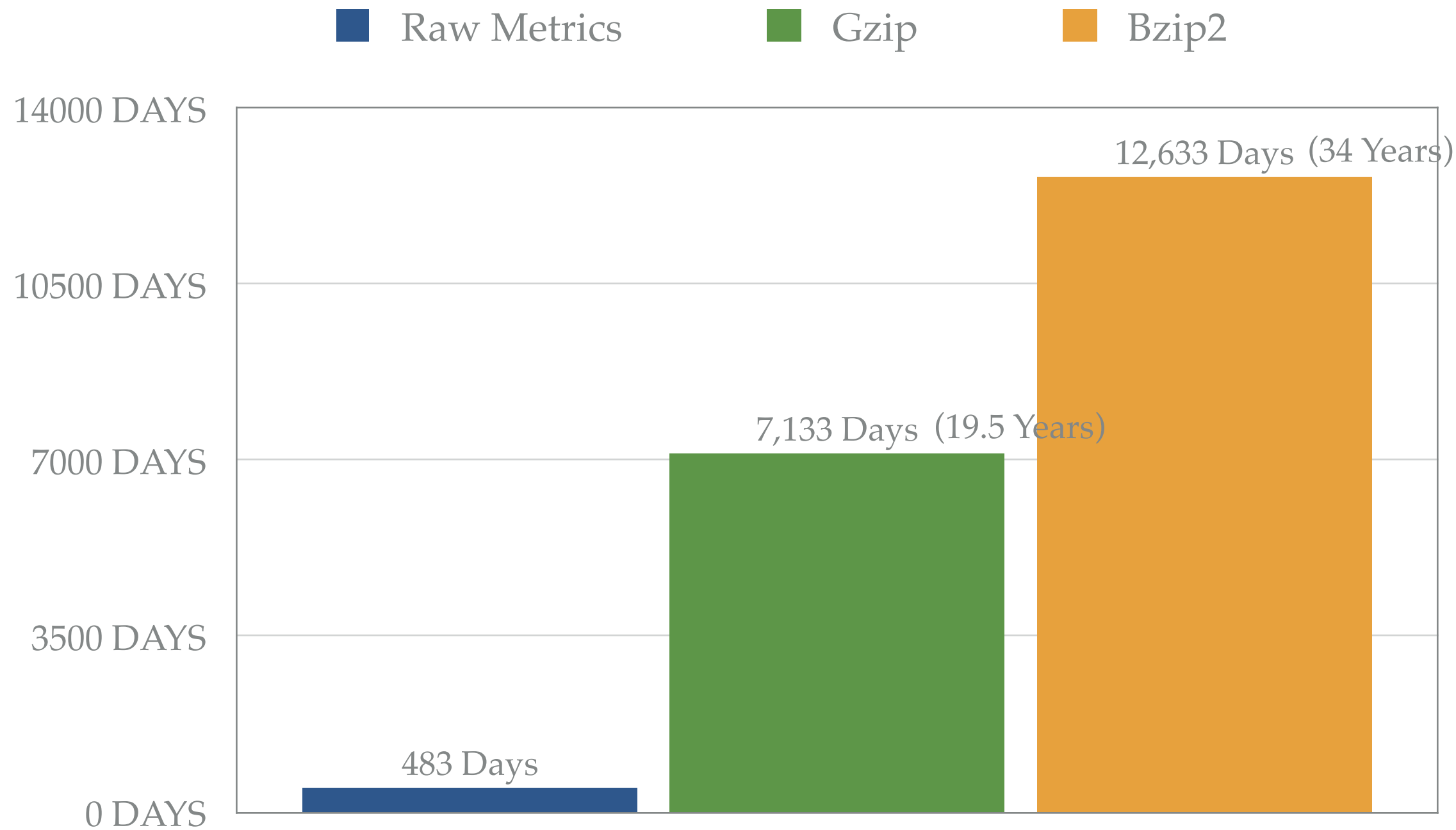
1 day of iDRAC9 monitoring data on the RedRaider Cluster

COMPRESS METRICS - CSV



1 day of iDRAC9 monitoring data on the RedRaider Cluster

COMPRESS METRICS - CSV



Suppose the available disk space is 2T

CONCLUSION

- ▶ Archiving monitoring metrics in files alleviates the data storage pressure.
- ▶ Storing data in CSV files consumes less storage.
- ▶ CSV files are much more simpler and more efficient to be loaded into TimescaleDB.
- ▶ TimescaleDB provides built-in compression mechanisms and deserves further exploring.



QUESTIONS?/COMMENTS?