



PETRONAS Petrotechnical Suite Digital Transformation

A Journey of a Thousand Smiles

Muhamad Marzuki Bin Asmuri, Upstream Digital, COE, PETRONAS

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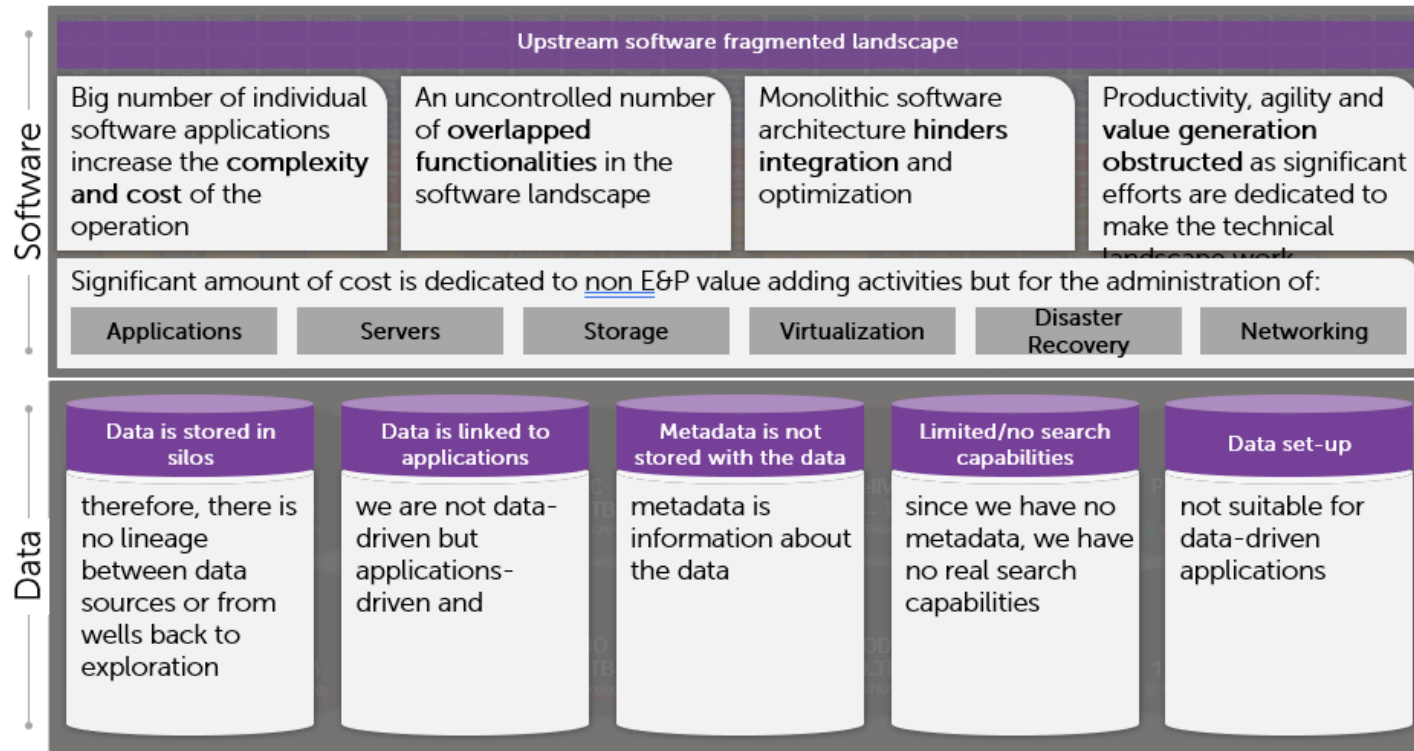
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Siloed technical landscape drains financial and technical resources into non-value adding activities

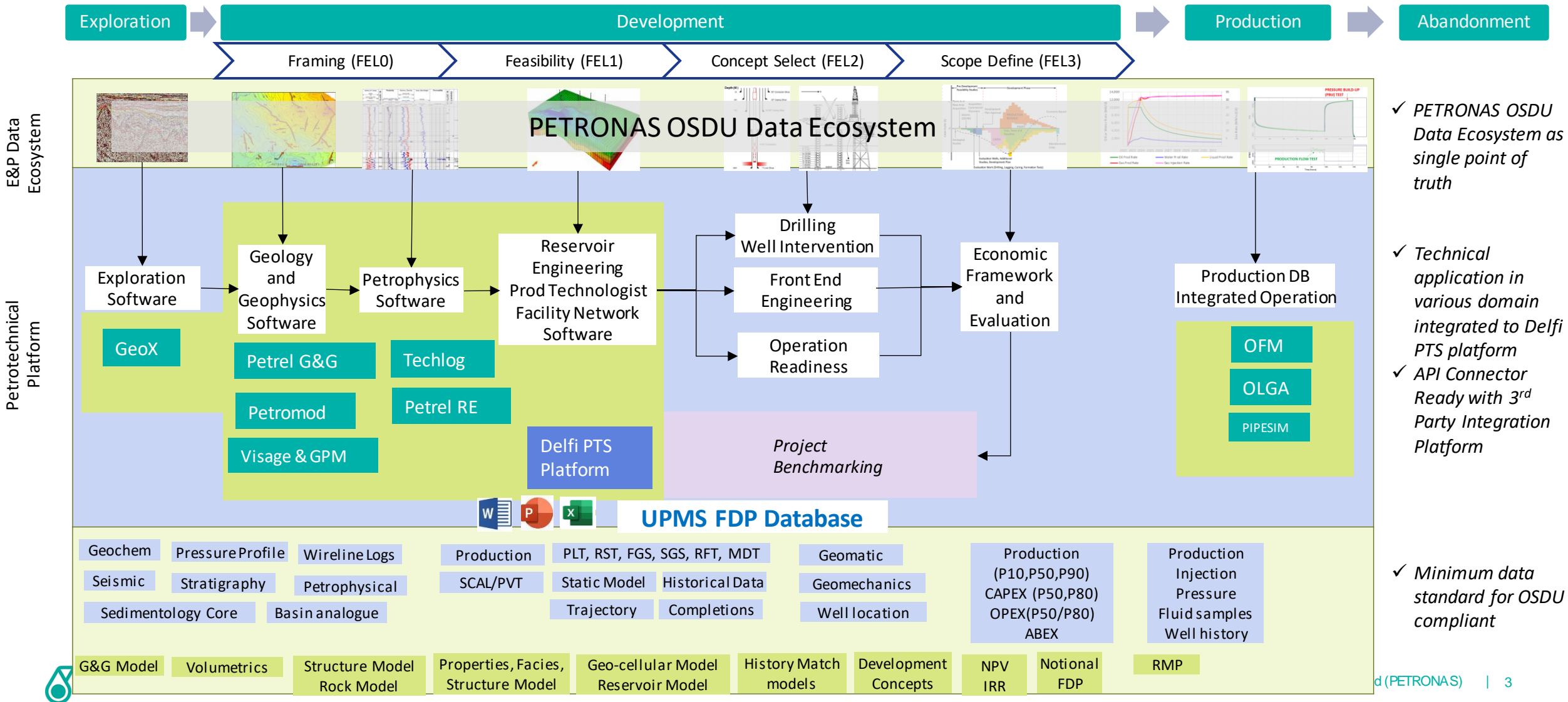
Case for change



Cloud Based solution (SaaS)

- Entrenching digital in the new way of working – Integration, Collaboration and Innovation**
- Delivering step change in core business – cost, efficiency and safety**
- Maximize value across the integrated chain – precision, reliability and agility**

DELFI PTS As-Is Platform Integrate Petrotechnical Application on Cloud & Orchestration of Multiple Scenarios from Exploration & Development



What is Delfi Petrotechnical Suite?

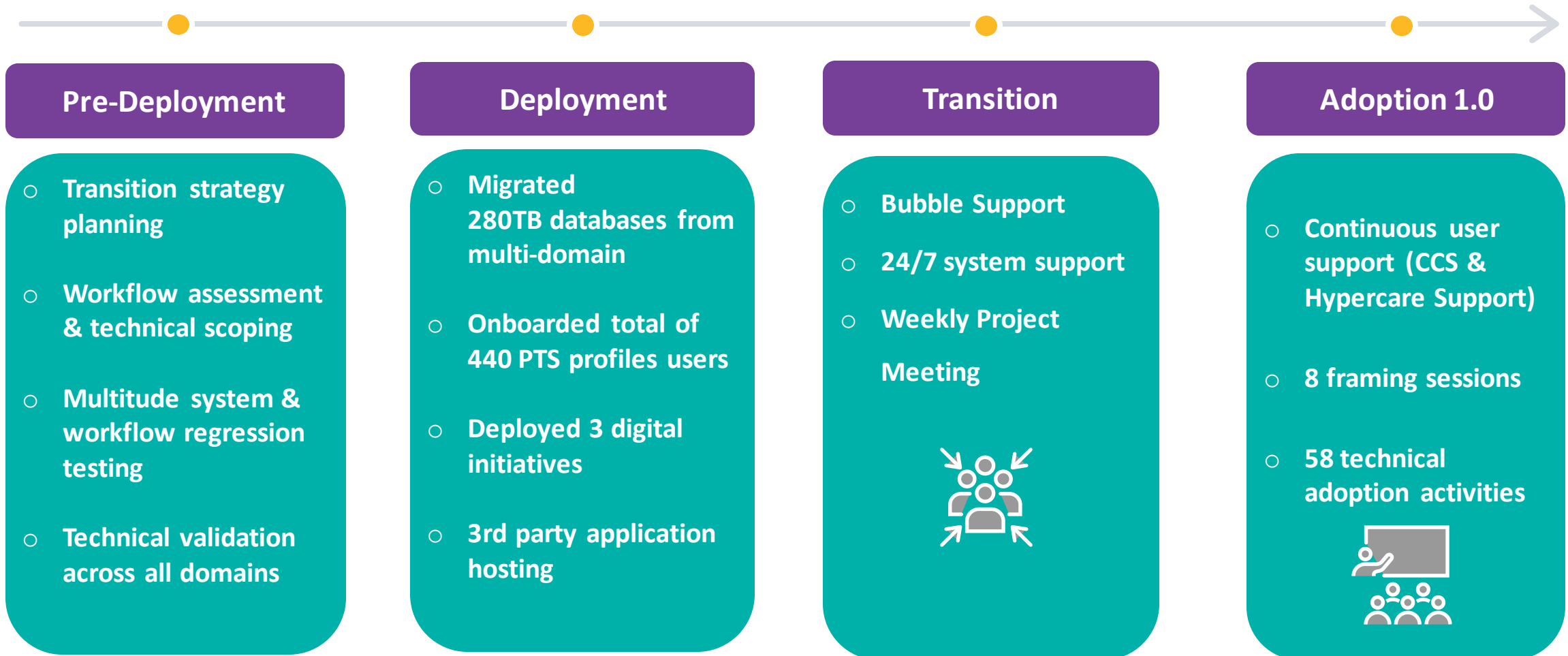
- Delivered as Domain Profile
- Work on the cloud – access to data & technology anywhere with internet
- Access to full suite of applications by profile (not dependent on modules, etc.)
- Cloud High Performance Compute Power (Elastic Computing)
- Call on unlimited computing power where required—improving the speed and quality of decision making
- Users move seamlessly between tasks, applications, and petrotechnical data sources.
- Empowers users and teams to achieve more, unconstrained by hardware, applications or data
- OSDU complaint

Delfi Domain Profile

- Geophysicist Plus
- Geologist Plus
- Reservoir Engineering Plus
- Petrophysicist Plus
- Production Engineering Plus
- Exploration Portfolio (GeoX)
- Project Data Manager
- Reviewer Plus Profile

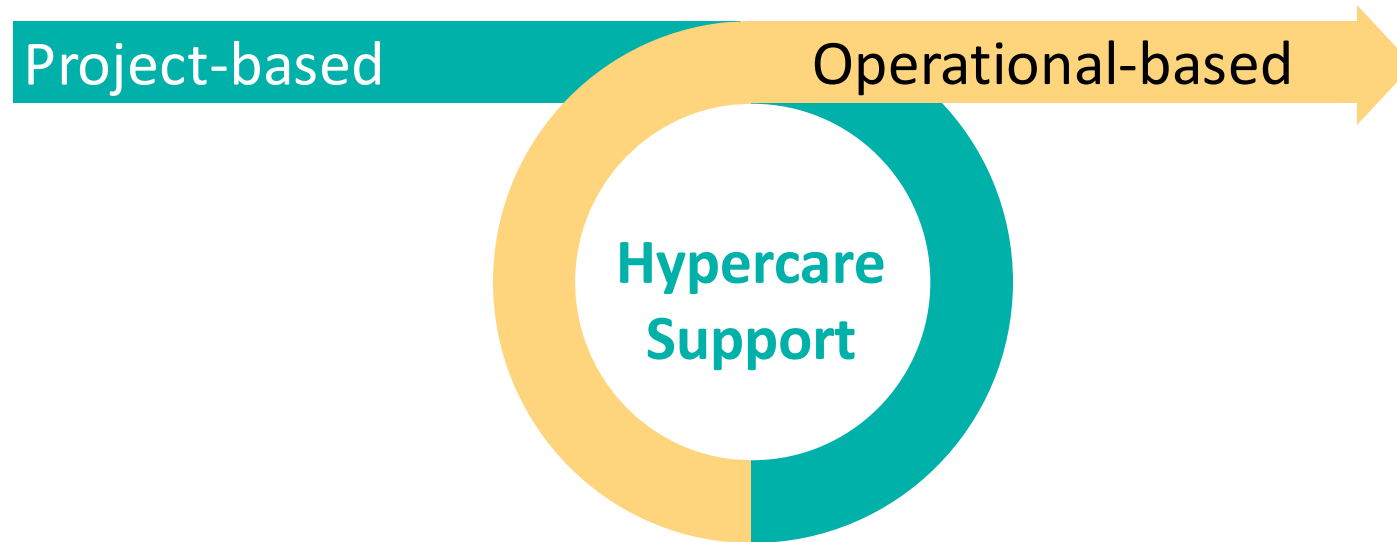
Migration Journey of Delfi PTS

Delfi PTS Deployment plan was prepared and implemented to ensure smooth transition from on-premise environment to Delfi cloud and to minimize the impact of changes of project delivery



Support Model: Hypercare

Enable continuous support for all PETRONAS DELFI PTS users transition from deployment & onboarding landing to DELFI PTS Go Live and ensure an effective adoption of DELFI PTS



- Single Point of contact for DELFI PTS and Domain Applications related
- Extensive PETRONAS knowledge from applications to domain solutions experiences
- Easy and efficient communication through PETRONAS MS Teams and Chat functionalities
- Strategic adoption plans based on user needs and requirements

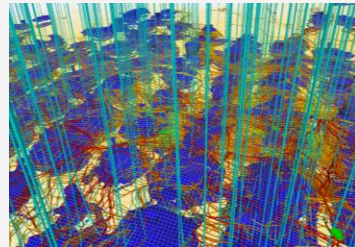
Benefits of Adopting the Clouds Solution

INSTANT PROVISIONING



- Save weeks or months on acquiring and installing new/extended HPC

ELASTIC COMPUTE



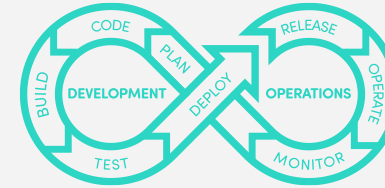
- 'Limitless' capacity for everyone
- Simulation driven by activity and operations not hardware and license availability

COMPREHENSIVE SECURITY



- Data protection
- Secure access
- Agile security

APPLICATION RELEASE MANAGEMENT



- Software update
- OS and software patches
- Bug fixes

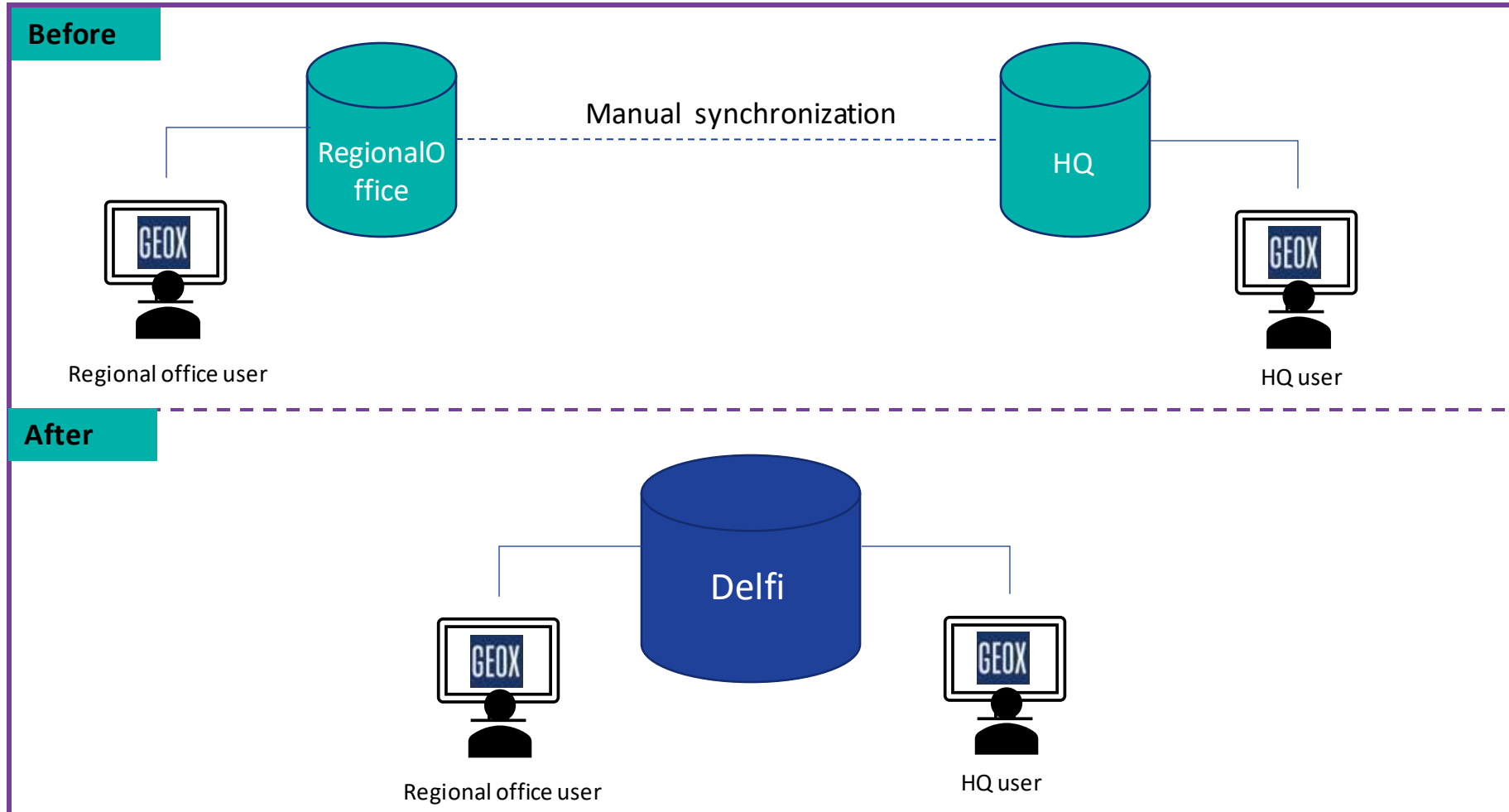
AZURE PLATFORM



- Azure support for low latency networks over RDMA InfiniBand
- Scale out using IB for multimode HPC and ML workloads on any MPI stack

Case Study: GeoX Centralized Database

Delfi enables GeoX database centralization between two regions (HQ and Regional Office) resulting a better collaboration and technical assurance between both project teams.



Benefits of centralized database:

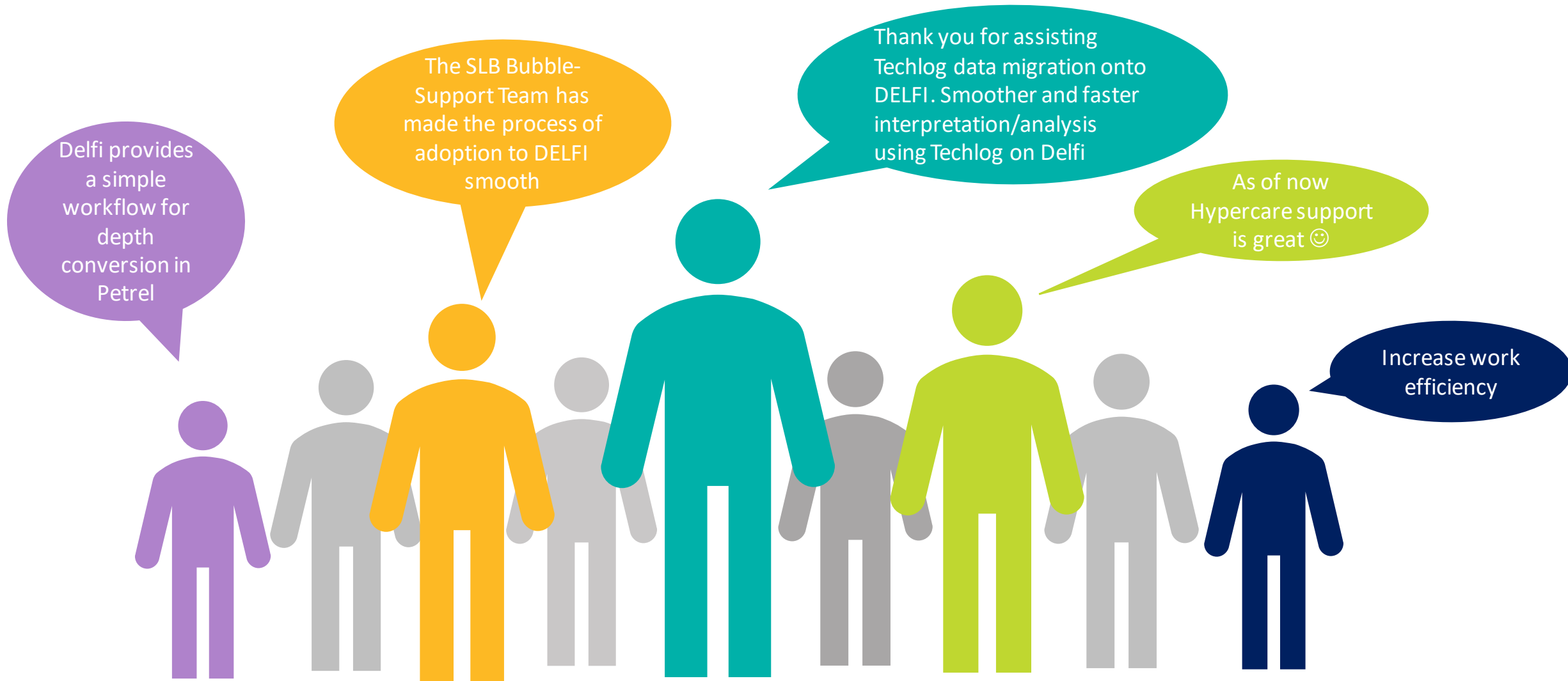
- Single database for multiple region
- Easy database maintenance
- Cost effective
- Faster turnaround time in decision making by HQ and Management team

Case Study: Simulation Performance Improvement on Delfi

- Improved simulation performance for Project X - The simulation run for one case was completed in 14 hours on Delfi compared to on prem in which the analysis took more than 26 hours to complete for one case.
- The shorter time taken for simulation run on Delfi enabled team to run more cases in a day and to obtain quicker results for better decision making.
- Quoting an example, where one of the asset team on project Z were able to achieve a 50% improvement, running their capture and storage (CCS) workflow, coupling VISAGE and ECLIPSE leveraging high-performance computing (HPC) engines on DELFI as compared to the conventional runs on premise, shortening the simulation runs.

Project	Simulation hour (on prem)	Simulation hour (on Delfi)
X	26	14
Y	37	17
Z	40	20

Delfi PTS User Feedback



Summary & Acknowledgement

Summary

Delfi PTS is a proven concept with these benefits:

1. Business continuity with online technology, support and single point of truth.
2. Improvement in process efficiency through reduced time in simulation runs (80%) & optimization runs, accelerate technical analysis evaluation (50%), instantaneous access to licenses/modules and real time drilling monitoring.
3. Reduced total cost optimization up to 13% comparable to on-prem solution.
4. Collaboration with cross domain & different department
5. Moving forward, to integrate Delfi PTS platform with PETRONAS OSDU to establish single source of truth for corporate data stores.

Acknowledgements

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Thank You