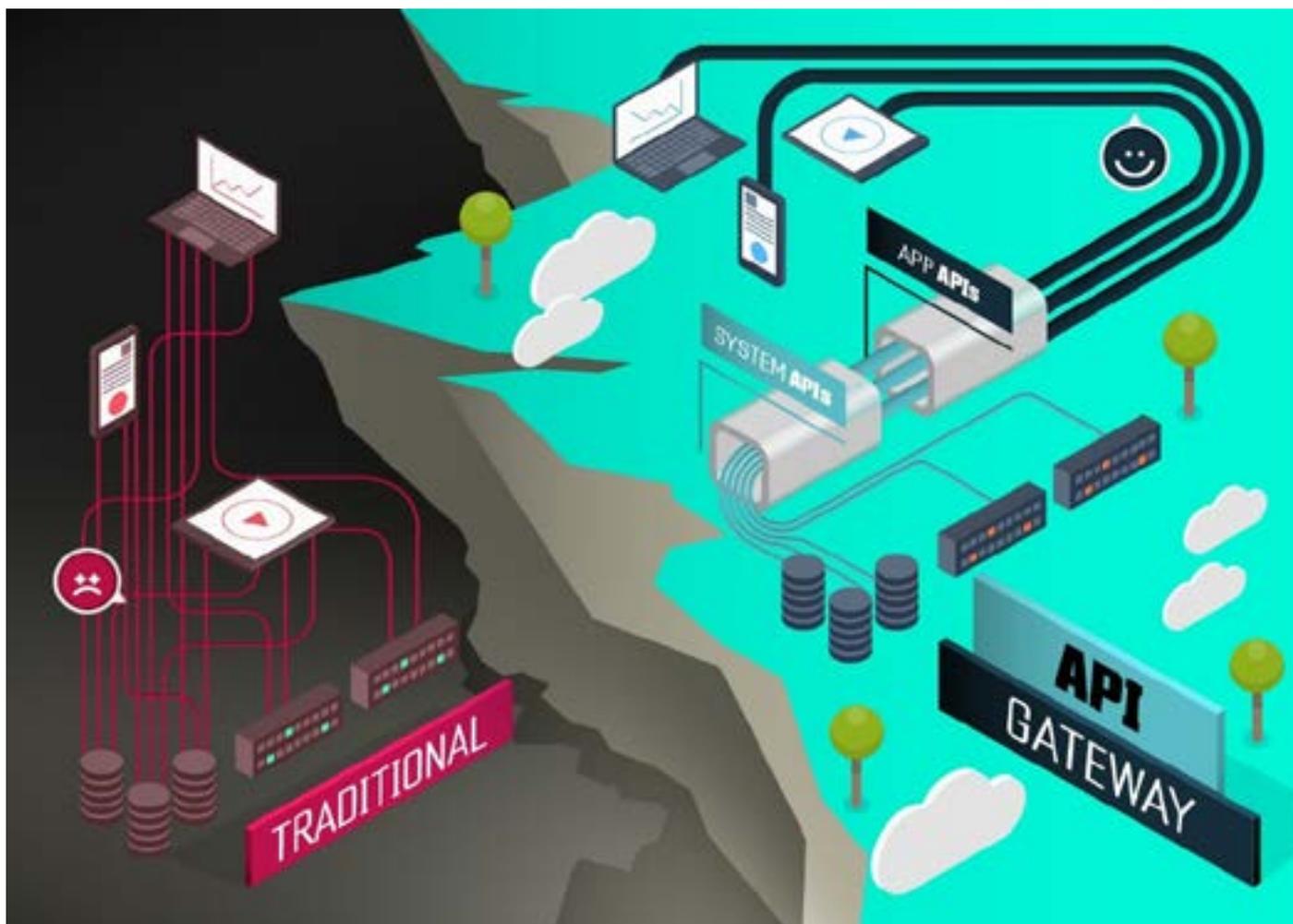# APEX

A Centralised Data Sharing Portal for Singapore's Public Sector

How can government agencies share data and application programming interfaces (APIs) to create new and innovative Digital Government services?

Enter **APEX** (API Exchange), a Whole-of-Government (WOG) platform developed by GovTech that allows users to easily publish, monitor, and discover APIs across government agencies securely.

In today's world, the increasing role of data -decision making has increased the need for a centralised and secure data sharing platform for the Government. Hence, the need for APEX, which enables innovation through a central catalogue and self-service portal where innovators can select common protocols to create new services and experiences for citizens.

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Think of APEX as a centralised data sharing platform within the government. It allows government agencies to conveniently and securely share data through the use of APIs. These APIs contain coded rules that manage who has access to the data -- and how the data gets transferred.

APEX thus addresses one of the biggest systemic challenges facing governments in the pre-era of machine-to-machine learning and AI: Data and system interoperability.

In practice, APEX acts as a centralised and secure API gateway for the government. It simplifies the communication protocols by which different government programmes talk to each other, providing uniform governance, consistency and reliable performance.

In addition to secure data sharing, APEX's API catalogue provides agencies with a searchable library of government APIs. This promotes knowledge sharing within the government, while reducing digital silos and the duplication of efforts.

Key Highlights

- APEX serves over 100 million API calls in a month and supports more than 2,400 API functions published by government agencies. Currently, 31 agencies have onboarded.

  · **myinfo**: APEX has enabled over 220 government digital services and more than 2,400 commercial services to be linked to the **Myinfo** service. This helps citizens to access services more efficiently and quickly by retrieving their data from various government sources through one platform, eventually doing away with the need for physical documents as verifications to complete transactions.

- · : APEX has enabled the **Immigration and Checkpoints Authority (ICA)** to provide digital certificates, instead of hardcopies, for important documents: birth certificates and death certificates. Instead, the digital versions of these certificates can be downloaded and stored on digital devices -- the parents of newborn babies in the case of birth certificates, and the next-of-kin of deceased persons for death certificates.

- APEX forms part of the communications layer of the Singapore Government Tech Stack (SGTS), a set of platform tools that streamlines and simplifies the development process and enables code reuse across the WOG to build secure, high-quality applications.

Features

- **API catalogue:** In addition to secure data sharing, APEX's API catalogue allows government agencies to effectively search for relevant APIs. This promotes knowledge sharing within the government, while reducing digital silos and the duplication of efforts. Rapid development is also possible without affecting the backend through APEX's API catalogue. Agencies can now discover and reuse existing APIs in their tech stack. This reduces an agency's development, integration and troubleshooting timespan, thereby speeding up service delivery.

- **Central logging system:** The central logging system of APEX provides an overview of all API call logs, allowing agencies to troubleshoot issues when necessary. This will be a central point for agencies to manage, monitor and harden security for APIs where necessary.

- **Central administration dashboard:** This is a monitoring tool for system health checks and analytics. Government agencies can garner an overview of the popularity and usage of their shared datasets, which allows constant improvement of datasets according to popularity and demand. Less popular data sets can also be deprioritised to allow for more time and resources to be allocated to impactful datasets that will be more beneficial for inter-agency sharing and use.

- **Self-service model:** APEX's self-service model allows the requesting agency to pull data sets from various agencies directly based on pre-configured access controls set by the agency that is providing the data. This speeds up the data sharing process as it eliminates the need to submit a request and await approval from the agency providing the data.

Benefits

APEX allows for:

- **Real-time management of data APIs and data consumption:** Government agencies can garner an overview of the popularity and usage of their shared datasets. This allows agencies to constantly improve their datasets according to popularity and demand.

- **Safe and secure transfer of data:** Due to the difference in data and security classifications, government systems are hosted in different networks, namely, internet and intranet zones on both on-premise data centres and on cloud. Sharing data between the systems hosted on these networks is challenging. Hence GovTech built APEX to safely and securely bridge the connectivity between the systems hosted in these different environments.

- **Savings on manpower hours:** APEX can facilitate the data sharing process between multiple agencies more conveniently and quickly, without the need to submit a request for approval from the agencies that own the data sources. APEX's self-service model allows the requesting agency to pull data sets from various agencies directly, thanks to pre-configured access controls set by the data owners.

- **Data Governance:** APEX provides a central point to manage, monitor and harden security for APIs.

- **Rapid Development for Service Delivery:** Rapid development is possible without affecting the backend. Using the API catalogue, agencies can discover and reuse existing APIs that can be integrated into their existing technology stack. This reduces an agency's development, integration and troubleshooting timespan, thereby speeding up service delivery.

- **Bimodal IT:** APEX enables an agency to leverage APIs to operate in Bimodal IT fashion - an IT operations model in two tiers: One tier for core IT systems and services that are stable and predictable, while the other tier for more agile and faster software delivery with shorter feedback cycles. The Bimodal IT model allows innovation to occur more easily, for example, by allowing quicker access to core information stored on legacy systems with APIs.

The Future of APEX

The current version of APEX is known as APEX On-prem ('on premises'). It will soon be enhanced to APEX Cloud, a full life-cycle API Management solution to support agencies in their internal and external API programmes.

Transition plans are underway to migrate the existing APEX On-prem workload to APEX Cloud in 2023. APEX Cloud is currently being piloted in a closed beta.

International Collaboration

Interested in learning more about APEX and its exciting new enhancements? We look forward to exchanging ideas on user journey design, user experiences and personalisation strategies.

- Explore the Singapore Government Developer Portal for more information about **APEX** and other GovTech-developed solutions.

- Get in touch with us at **tmo@tech.gov.sg**.

- For more information about Singapore's Digital Government Journey page, visit **this page**.

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