



ACCELERATE DIGITAL CONNECTEDNESS THROUGH API MANAGEMENT

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Abstract

Government initiatives, Digital advancements in auto manufacturing, Mobility, and Internet of Things (IoT) are the drivers that would play a crucial role in the future of Digital Insurers. Vehicle to Vehicle (V2V) & Vehicle to Infrastructure (V2I) protocols are close to receiving approvals from the US Government to increase safety on roads. In addition, intelligent appliances will provide information for Auto & Property Insurance Risk Management. Mobile and wearable devices will provide data for health and personal safety leading to individualized insurance services. Within the existing Insurance enterprises a wealth of information is locked up in data warehouses and IT systems that has untold potential in the form of Big Data.

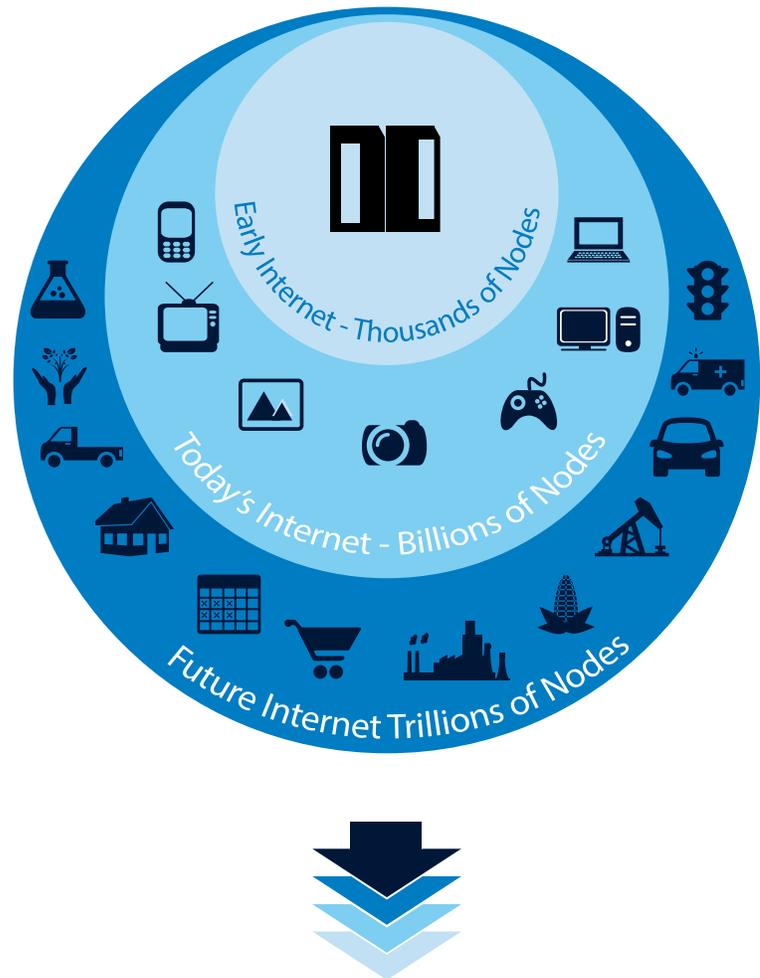
In the near future, Connected Auto, Connected Home and Connected Consumer will be the passwords to success for insurers. To achieve this, effective API Management is the key for the Digital Insurer to bridge all these different dimensions and help insurers provide individualized, usage based and effective services to consumers.

Introduction

There are two key imperatives leading to four themes that are defining the technology landscape and the dependency of any business in capturing these traits. The first is the explosion of devices popularized as the Internet of Things (Figure 1 for Reference). The second is the data accumulation, transactions and the endless possibilities of putting these devices to use. This is popularly known as Big Data. The four themes that will define implementation in the technology spectrum are Social, Mobility, Analytics, and Cloud Computing. Digital leaders that have charted their course for the future with a focus on connecting with the consumer need to understand the two imperatives and apply the four themes.

To accelerate the Digital adoption process your organization needs effective Application Programming Interfaces (API) Management. Here, the Infosys perspective of RENEW (integrating the best of features of existing enterprise systems) and NEW (augmenting new products, software and methods) can come in handy. Some key questions this paper attempts to answer are:

- How and where do APIs fit in the digital enterprise of an insurance company?
- What are the key considerations (external and internal) for API management?
- Which key dimensions of API management will serve as core needs?
- For an IT architecture, how are APIs different from SOA – and is there a conflict?
- What are the typical milestones to be aimed for in economizing the data?



<p>McKinsey \$6.2 Trillion impact on economy by 2025</p>	<p>Ericsson 50 billion devices by 2020</p>
<p>Gartner Product & Services market to be worth \$300 billion by 2020</p>	<p>GE \$15 Trillion opportunity</p>

Figure 1: Industry view - The Internet of Things

Connecting with the Insurance Customer

The Internet of Things, Big Data, Connected Platforms and everything around Digital all lead to one succinct objective. This objective is to achieve continuous engagement with the customer. In most cases, customers make contact with insurance companies not more than once or twice a year. This

happens during policy renewals or in case of claims. As insurance companies across the spectrum (property and casualty, life and annuities, health, commercial, and specialties) seek to engage customers and offer them individualized and value-added services, there is a need to digitally transform their technology environment.

The immediate need is to enable customers to get information fast and

intuitively as well as empower channels such as agencies, brokers and service operations. The need on the ground is to add capabilities dynamically with very little "code" changes. There is little tolerance for downtime and planned releases. Business owners want to ideate and execute changes quickly.

Digital Insurance and APIs: The Existing Landscape

The technology landscape of a typical insurance company caters to the user through channels and a gamut of systems that is integrated to serve this purpose.



Figure 2: Catering to the user

Figure 3 below describes the information flow in greater depth with "data" being the key element.

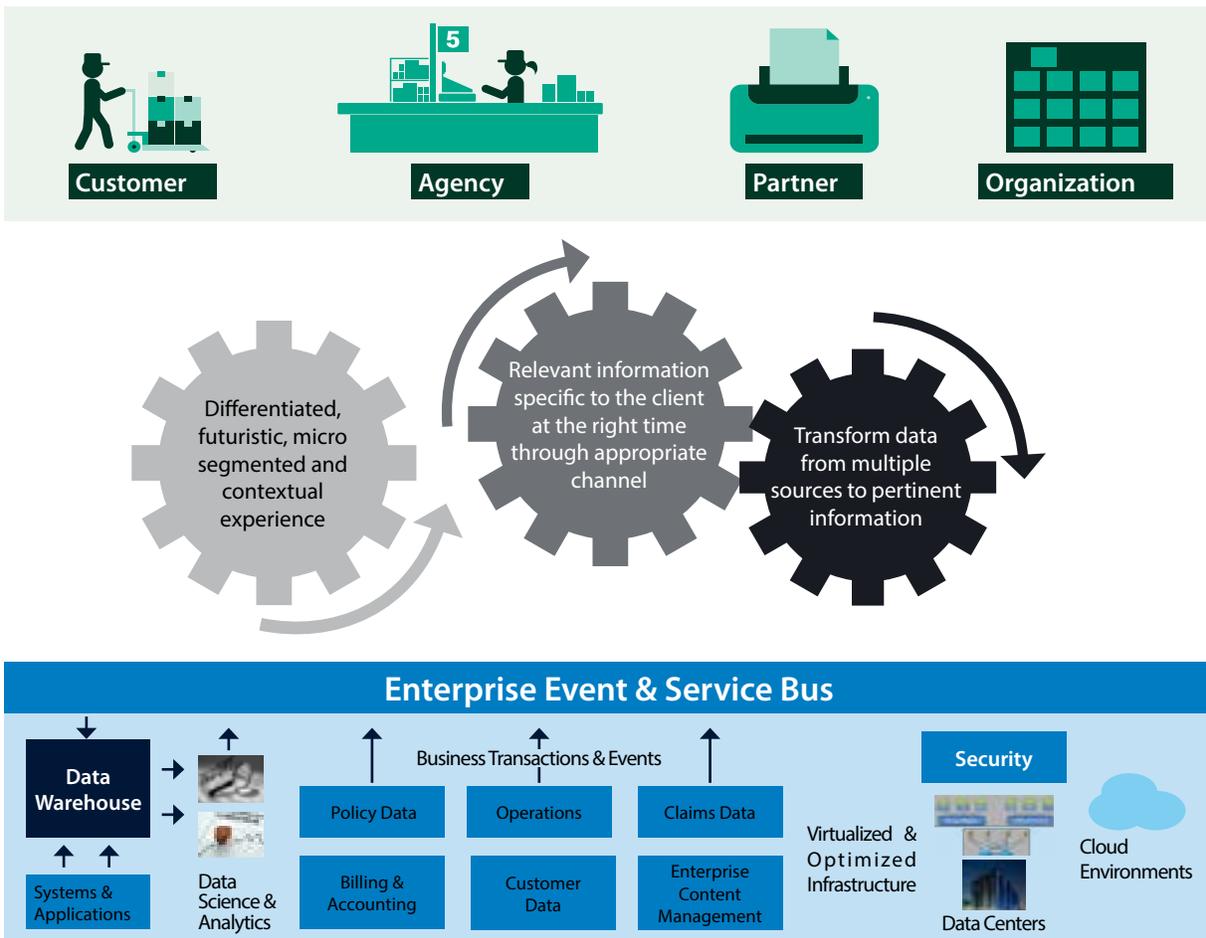
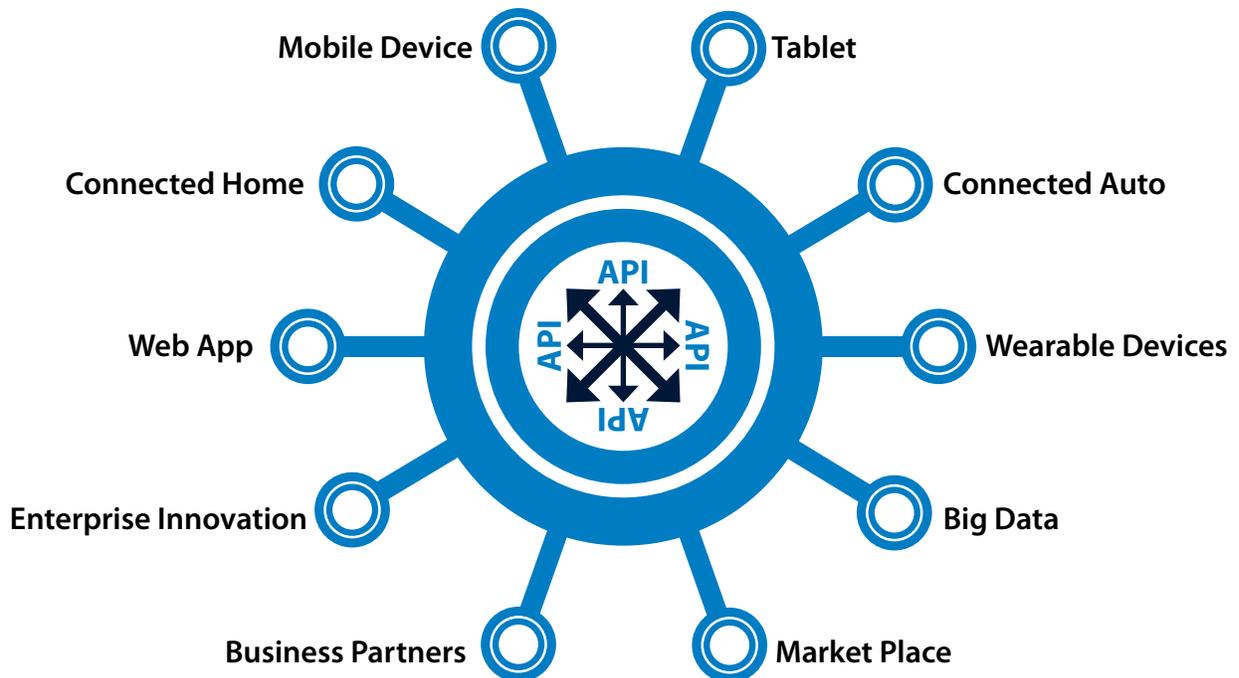
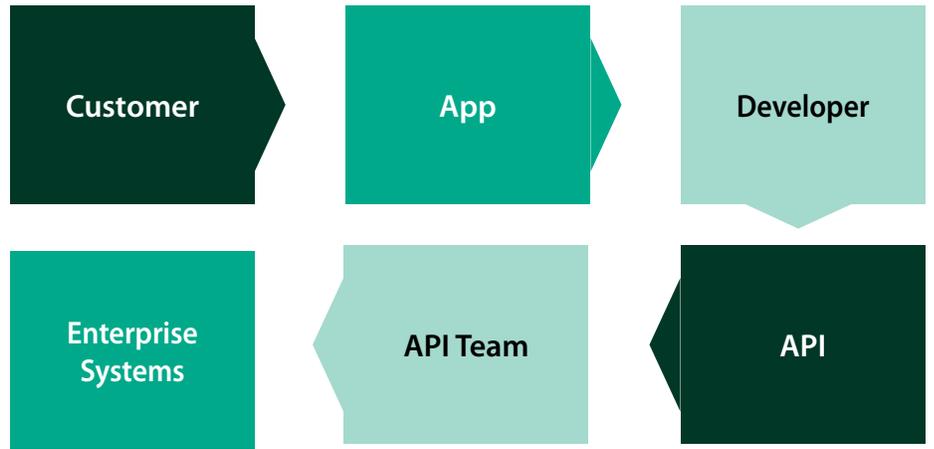


Figure3: A typical data-driven enterprise

Where APIs come into the Digital Value Chain

APIs have existed since the birth of software programming. APIs today are critical in the context of breaking new barriers with the data that is with the enterprise and letting the internal world (employees) and external world (developers) innovate around it.

To simplify APIs is at the heart of achieving "Connectedness" and Infosys believes Pervasive Computing is a key theme in the journey towards Building Tomorrow's Enterprise.



Embracing API Management

Key considerations of API management

Simple internal needs include:

- Improving operational efficiency
- Empowering team-mates
- Innovating with data

Similarly, external needs are

- Improving connectivity with the world (Pervasiveness)
- Enabling partners
- Creativity with data (externally)

Technology enablers to propel these considerations include:

- API software development kit (SDK) to support developers from starters to experts
- API mediation layer that can easily convert the existing services in the enterprise (in any technical format such as SOAP, EJB, .NET, etc.) to RESTful APIs.
- Layer of protection for the APIs and eventually for the enterprise services.

Security is critical since the APIs are also a window to the data and information in the enterprise systems.

- Security and access should be easily configurable and seamless so that logins and multiple connections are easily handled with open standard protocols (O-Auth, SAML, etc.) and, if necessary, message-level encryption with keys to authorized users.
- The usage of APIs is expected to grow exponentially with the launch of parallel services, products and campaigns to

encourage a growing community of customers, partners and employees. This requires the system to be high-performance, scalable and 100% available.

Dimensions of API toolkit

Most API management packages today consider the following dimensions (Figure 4) as part of their offering. An organization would need most, if not all, of these.

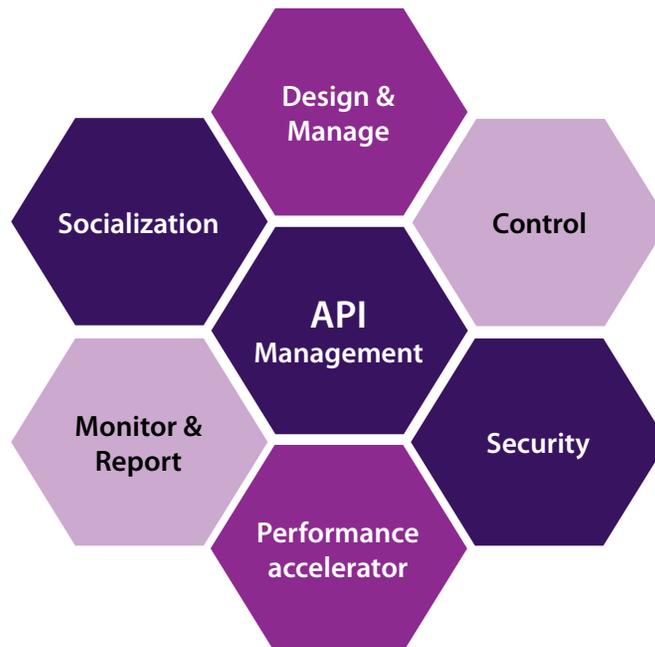


Figure 4: Key components of an API Management toolkit

The basic elements that define the key components of API Management can be broken into:

Design and Manage:

- Life Cycle Management (of the particular API and the set of APIs)
- Versioning (how many APIs of the same model will be available to developers or partners)
- Policy Definitions (encryption, authorization and policies that define a set of APIs)

Control:

- SLA Monitoring and Audit
- API Usage Tracking (a key metric that helps propel or retire a function)
- Traffic Throttling and Smoothing (to keep enterprise systems stable and available for users of APIs)
- Content Routing and Blocking

Security:

- Protection against DoS and hacker attack
- Use of open standards for federal identification and authentication using O-Auth and SAML.

- API-key generator / management

- Digital signatures, message envelopes and encryption

Performance Accelerator comprises:

- Paging, caching and message enrichment
- Transform, route and mediate (SOAP <-> REST and XML <-> JSON)
- Message parsing, validation and translation
- Service aggregation, virtualization, refactoring, and process simulation

Monitoring and Reporting consists of:

- Quality of service
- Problem Identification including guidance in debugging
- Usage rate and trends
- Audit trails

Socialization includes:

- Self-registration and subscription
- Access to documents based on the level of authorization
- Blog, ratings and comments
- Incident ticket management

- Social media integration (followers and RSS feeds)
- Promote and test services

API Management implementation methods

On-premise API manager: This is the widespread model of implementation where the API package is part of the enterprise data center. The package can be an appliance or installed software. In this case, enterprise systems are the main producers of the APIs.



Cloud-based API manager: This is used when it is more cost effective to have the gateway external to the enterprise. In this case an enterprise data center is only one of the many service components in the ecosystem.



Proxy-based add-on software: This is a rarely used API package implementation. Instead, the existing infrastructure of the websites hosted by the enterprise is customized to play the role of API Manager.



API Applications in Digital Insurance: Marketplaces and monetization

Just like modern web retailers, insurance companies can host marketplaces where

partners and vendors can offer services to insurance customers. For instance, an auto Insurer can host a marketplace for auto dealers, mechanics and even partners that combine health and life insurance.

Data can be shared, models can be defined between partners as well as developers, partners and enterprise to effectively trade and monetize data.

Web believe there are 4 categories of marketplaces:

1 Product marketplace

For the sale of 3rd party products and services. The objective is to attract partners.

2 Data marketplace

For the sale of enterprise data in raw format or in models defined by data scientists to spur innovation and creation of apps. The objective is to attract developers.

3 App marketplace

This is an app-store comprising enterprise apps as well as 3rd party apps. The objective is to drive innovation inside out from the internal community to external developers.

4 Distributor

Enterprise syndicating apps to third party sites. To start with, this will need a set of minimum viable APIs to transfer to multiple external sites and a team to engage other partners to take the app based on the APIs on their



Conclusion

Manufacturing, retail and information services hold a combined 49% of market share in the Internet of Things. Financial services and insurance has less than 9% of the share. Obviously, it is a long road ahead but one that holds great potential for the insurance industry in its Digital journey.

API Management serves as a catalyst in transforming traditional insurers into digital enterprises by effectively leveraging the Internet of Things and Big Data technologies.

Insurance enterprises embarking on a digital journey will need to put effective API Management in place incorporating the competencies and services depicted in the figure below:

B2B	B2C	C2C	M2P	M2M	IoT
API strategy	API ecosystem	API development	API socialisation	API administration	
<ul style="list-style-type: none"> • Digital strategy • Cxo advisory and buy-in • Build new digital - channels • Explore new business models • Market apis as products • Re-define business agility • Functional requirements • Developer & partner ecosystem • Api as a product(on-demand) 	<ul style="list-style-type: none"> • Capability design • Lifecycle design • Policy design(metering etc.) • Technology choice • Accessibility • Self-service portals (user & partner) • Integration standards • Marketplace • Threat models (security) • Cloud ready design 	<ul style="list-style-type: none"> • Functional specifications • Technical specifications • Analytics & reporting • QoS design • Policy specification • API testing • Migration design • Programme planning 	<ul style="list-style-type: none"> • Developer/user community ecosystem • Marketing • Marketplace platform setup • Sandbox mgmt • Service management • Publishing • Discovery • Self-service portals • Ratings and recommendations 	<ul style="list-style-type: none"> • Monitoring • Reporting • Feedback management • Actions logging & execution • Incident & problem management 	
Strategy consulting					
Business case creation	Architecture Consulting				
Product Evaluation & Recommendation		Implementation & Support			
Prototyping & Concept Proof			Operations Platform Delivery		
Continuous Benefit Analysis					

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Narayanan Chathanur is a *Digital Architect & Market Leader*

Narayanan heads the Americas Digital Portfolio for Insurance, Cards and Payments at Infosys. He has over 15 years of experience in Architecting solutions and helping clients in the sectors of Financial Services, Insurance and Energy businesses. He specializes in Digital Strategy and Transformation with the application of Experience Delivery Platforms, Enterprise Architecture, API Management, Information modeling, analytics, social media, Cloud and mobile technologies. He is a fervent learner and believes in “Human focused adaptive automation” when it comes to application of Digital Technologies.

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