NDF · Amdocs Network Data Fabric

Built to Convert
Data to 5G
Revenue

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Introduction

Amdocs Network Data Fabric (NDF) is a real-time stream processing platform that can ingest from any source and transform data to a common format for real-time processing and distribution to any downstream application.

Data is the fuel of the 5G value chain. We enable service providers to realise and monetize their position in the 5G value chain by providing the ability to harness disparate and complex data, transforming and refining it into purposeful value across the business. The growing volume, velocity and variety of incoming data is now simply too vast and complex to be processed by traditional means. NDF is built for constant change in the business value outcomes required as well as the emerging challenges and complexities of data extraction and presentation into the future.

To capitalise on the opportunities 5G represents, service providers need data processing capabilities built into the fabric of their network with the capacity and agility to translate information into actionable intelligence and revenue-generating events to capture new business opportunities. NDF provides the 'data refinery' which transforms crude/raw data from anywhere into clean/useful data which can be applied downstream to anywhere.

Benefits

5G will see a massive increase in use cases and applications. The growing complexity of services, the relentless growth of data and the need to manage a myriad of data flows to feed a wide range of solutions means that a new approach to data management is needed. Service providers want to increase efficiency and achieve a higher ROI through the use of open source software. They also need to be able to collect and refine vast quantities of 5G data in real-time and turn this into meaningful data that provides the foundation on which 5G businesses will be built.

Service providers today need a platform that can process records, as they are generated. This is necessary because the applications and use cases that depend on this 'fresh data' do not suffer latencies nor delays for the information they consume. Think of Tesla, whose Autopilot application relies on the processing of data in real-time.

The pace of business processes and operations now require applications not only to process information as it is created but also to predict and anticipate trends and events even before they occur.
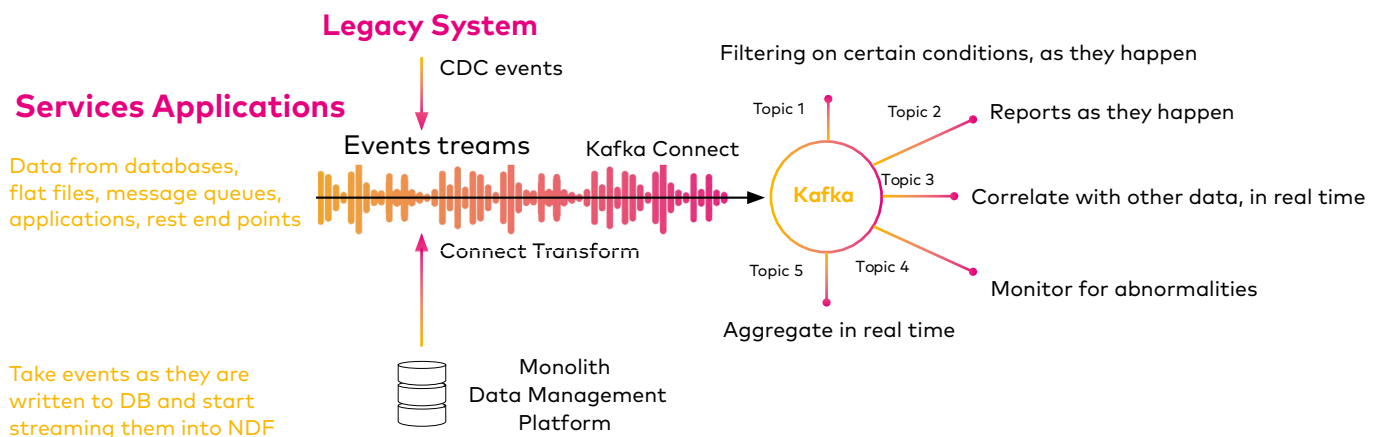
Figure 1: Amdocs Network Data Fabric – Sample Processing Flow

Key Benefits

Prolong 4G Investments while Delivering 5G

NDF provides a 4G to 5G data bridge, which enables service providers to prolong existing 4G investments while building out their 5G business. The bridge function performed by the NDF enables the seamless conversion of protocols so that legacy systems and supporting business processes can persist. For example, one of our Tier 1 customers is leveraging NDF to simultaneously maintain a legacy billing system investment while introducing the 5G core.

Built to Enable 5G Use Cases

Amdocs have compiled a growing catalogue of over 50 use cases, covering data mediation, service monetization, quality of experience management, network optimization and audit, control and reporting.

Fast Deployment Through Modular Design

Amdocs' microservice-based approach to product design allows for a flexible deployment in a modular manner. The platform comes with in-built stream processing functions as standard, with the ability to easily add and configure as required for new use cases and application needs.

Zero Code

Easily configure new use cases and data insights through a GUI designed for business users. Engaging with the platform is accessible and intuitive – No need for a PhD to configure a new data flow or to source a new report.

NDF Low TCO

A fully cloud-hosted solution significantly reduces infrastructure, person days for configuration and maintenance and licence costs. Unlike similar platforms on the market, NDF boasts a remarkably low footprint. This means no dependency on external applications to perform highly complex processing of streaming data within the platform itself. Alternatives rely on external applications to perform certain tasks, which means the overall cost of the platform inflates once in place. Amdocs' carefully engineered NDF platform delivers a lean and efficient solution.

Future Proof Adaptability

Designed to scale up and down for 5G data volumes and beyond. Amdocs' platform is highly scalable, allowing it to scale up to meet high volume demands and scale down to meet the needs of federated deployments for enterprise. With near limitless scaling potential, Amdocs has already surpassed the processing of 1 trillion events per day or 11.5 million events per second. The low latency demands of edge-computing require a distributed and cost-efficient platform. Unlike other platforms, NDF can scale down for small deployments equally as effectively as it scales up. This makes it an ideal candidate for edge network, enterprise, IoT and VPNs.

Features

Cloud Native	Containerised with Kubernetes and optimized for cloud environments Take advantage of a cloud native architecture to maximise the scalability and responsiveness of your platform Allows you to focus on generating data insights and business outcomes that drive value
Intuitive Configuration GUI	Perform complex actions without technical support An intuitive configuration GUI means that any business user is able to engage with the platform without lengthy and costly technical training
Event First Approach	Continuous stream processing as events happen Service providers today need a platform that can process events as they are generated Applications which depend on 'fresh data' do not suffer latencies in the information they consume, undermining their output
Compact Architecture	Low footprint and TCO with no need for 3rd Party applications Compared to traditional proprietary mediation platforms, enjoy a significantly lower TCO thanks to a reduction in footprint, configuration and maintenance effort and no reliance on expensive SAN storage costs
Not Single Output Focused	Supports any downstream business and operational application Purposefully process and distribute meaningful data out-puts to any downstream unit, from Marketing to Engineering to Finance Enhancements

**Amdocs
Network
Data Fabric**

Fault Tolerant

Highly redundant solution

Built-in data persistence to ensure data is never lost

Error Detection

Identify, reprocess and replay error records

Make sure any error records are captured and reprocessed

Open Source

Built on Kafka Cluster, Brokers and Zookeeper, Kafka Connect with custom modules, schema registry and microservices

As the industry moves away from proprietary vendor lock-in and towards Open Source architectures, it's important not to be left behind

Proven Open Source technologies provide a reliable community-based alternative, which is constantly being optimized

Observability

Interrogate data stream in real-time

Enable distributed tracing, data lineage, statistics and metrics monitoring

Always know what is happening with the data traversing your network

Enabling AI & Machine Learning

Interrogate data stream in real-time

Enable distributed tracing, data lineage, statistics and metrics monitoring

Always know what is happening with the data traversing your network

**Amdocs
Network
Data Fabric**

Amdocs Network Data Fabric performs the heavy lifting in preparing all data for analysis, enabling a wide range of artificial intelligence and machine learning applications. Taking a sample use case, let's look at how NDF supports the correlation of Quality of Service (QoS) and Quality of Experience (QoE). Here, we correlate network QoS experience to QoE reporting to better understand customer satisfaction.

The Business Need

Better understand customer satisfaction and QoE drivers

Improve customer segmentation and targeting recommendation considering satisfaction (or dissatisfaction) drivers from the network

40% of the contact center calls are regarding network issues, better correlate and connect between QoS complaints to QoE impacting customer satisfaction, churn and upsell opportunities

The Solution

Monitor RAN KPIs based on geographical cells

Report for each customer contact center calls on network issues and respective sentiment score

Per customer based on most frequent cell used hourly, extrapolate to a daily and monthly basis

Find correlations between QoS to reported QoE on a geographical basis

Report correlation insights to explain QoE issues by QoS analysis

Business Value Expected

Addressing specific customer segment QoE issues

Increase productivity of RCA – by providing machine learning capabilities to RCA of QoS/QoE correlation

Upsell opportunities – following QoE proactive care, can initiate upsell opportunities
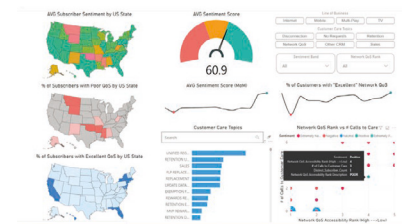

Figure 2: Enterprise Customer-Centric View of Network Events
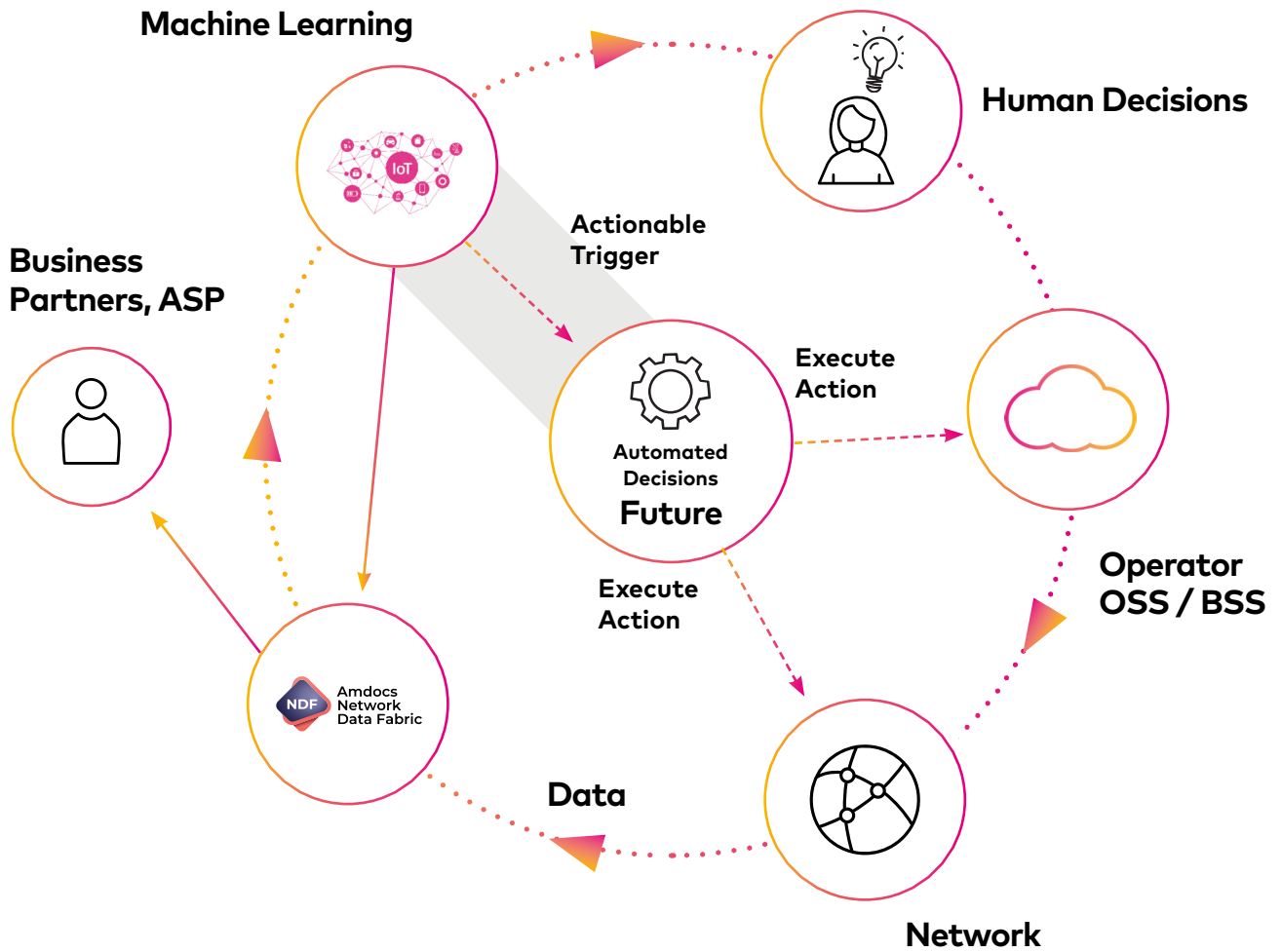
Solution Overview

Figure 3: Paving the Way Towards the Autonomous Network

Why We're Different

Supporting Multiple Network Generations at Once

Migration to a modernised stream processing platform can be performed easily by tapping into the transaction system of the monolith mediation system, transforming this 'batch' feed (or Changed Data Capture feed) into a real-time streaming event feed. Stream processing of this data can be performed, opening up diverse applications, such as filtering, enrichment and correlation with other information streams. Legacy systems and batch processes use Change Data Capture (CDC) to capture all changes made in database, but this uses a lot of system resources, making it impractical for large data sets. Transforming the CDC feed into a continuous feed results in faster updates and more efficient scaling as more data becomes available.
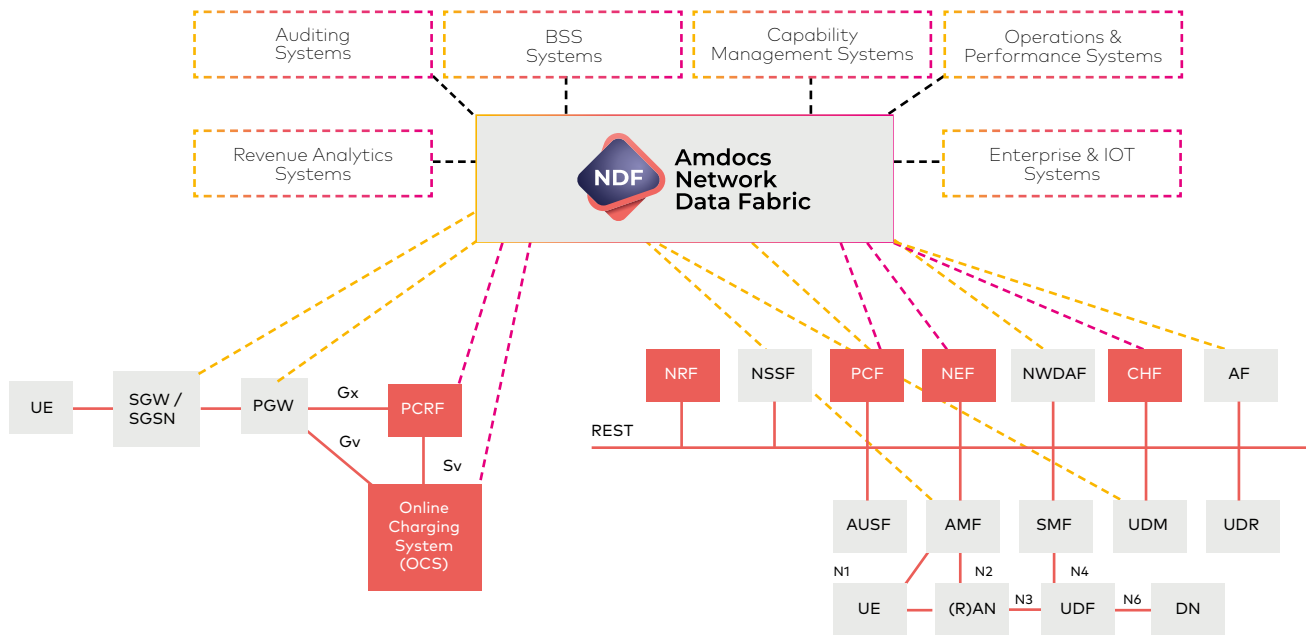

Figure 4: Supporting the Data Needs of Multiple Network Generations at Once

3G/4G Network

- Broadband speed, Streaming
- Offline and Online Charging
- Quote-Based Usage Management
- QoS and Policy Management
- Real-Time Notifications

5G Core Network Advances

- Separation of Data and Control Plane
- Network Slices
- Service Based Architecture
- Increased Centralisation of State
- Harmonised Protocols
- Flow-Based QoS

- - - - - - VENDOR EDRs/Events (via CCS)
- - - - - - Amdocs EDRs / Events
- - - - - - NDF PROCESSED DATA

Amdocs Network Data Fabric enables real-time event processing for analytics use cases, which are often highly dependent on the analysis and comparison of information as it happens in order to make it useful. The platform has the ability to ingest and transform real-time data feeds, filter and aggregate, as events happen and correlate with reference data (e.g. service profiles, benchmark KPIs, expected load levels) in order to present output triggers for a policy decision, alarm notification, offer notification or downstream analytics systems.

Amdocs Network Data Fabric is carefully engineered to exploit all the benefits of a stream processing architecture, acting as a central hub for all data events to help serve all business applications and processes that require real-time processing of events. It can collect event records from the vendor-agnostic 3G/4G network and from 5G components as well as external components to support business systems.

Examples of the business applications that NDF supports with real-time data include:

- Monetization: Real-Time Offer Management, Next Best Action, Real-Time Customer Satisfaction Response and Contextual Marketing
- Audit & Control: Revenue and Fraud Assurance, QoE and QoS Management, Customer Experience Management and Customer Care Support
- Insights: Customer Adoption Trends, Anomaly Detection, Profile Analysis, Sampling of Service Types, Discovery and Reporting
- Service Assurance: Operational Monitoring, Network and Service SLA Adherence and Service Degradation Analysis
- Network Optimization: Network and System Resource Management, Tuning of Services to Optimize Resource Utilisation, Cost Efficiency and Experience. This includes support for NWDAF (network and data analytics function) in 5G networks

Amdocs can leverage the expertise, scale and solutions of Amdocs to provide our world leading products stand-alone or as part of a wider multi-product solutions.
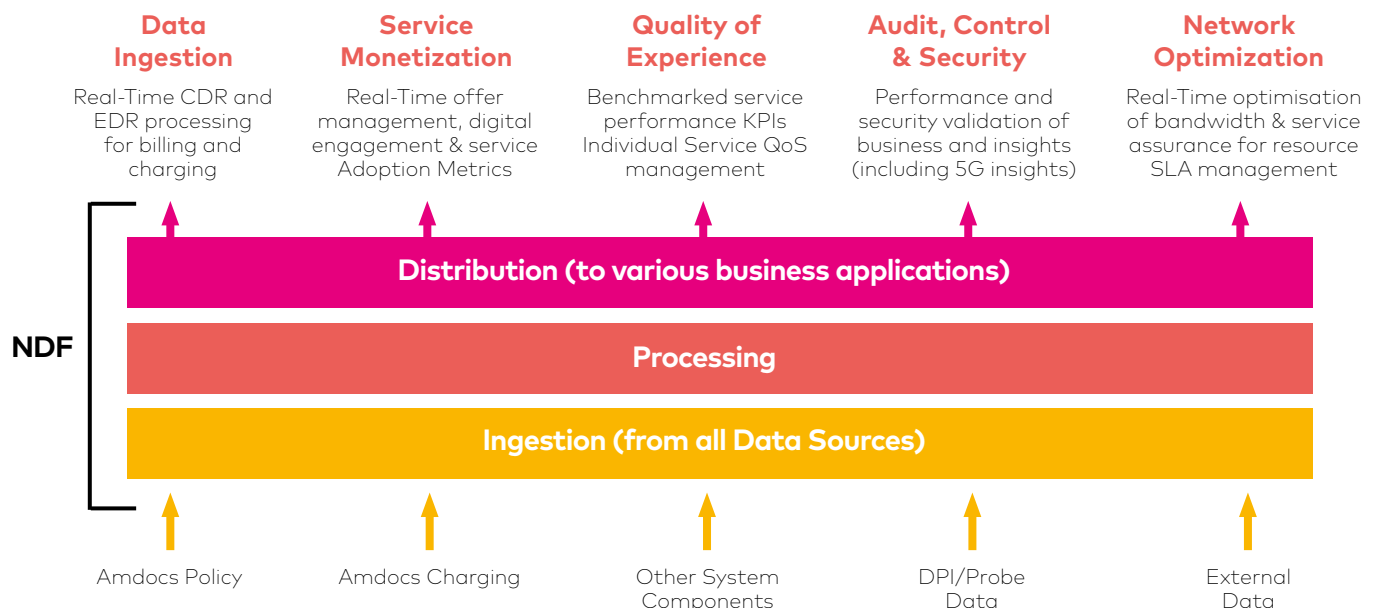

Figure 5: Grooming Data for various OSS/BSS benefits

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Amdocs helps those who build the future to make it amazing. With our market-leading portfolio of software products and services, we unlock our customers' innovative potential, empowering them to provide next-generation communication and media experiences for both the individual end user and large enterprise customers. Our 31,000 employees around the globe are here to accelerate service providers' migration to the cloud, enable them to differentiate in the 5G era, and digitalize and automate their operations.

Listed on the NASDAQ Global Select Market, Amdocs had revenue of $4.3 billion in fiscal 2021.

For more information, visit Amdocs at www.amdocs.com