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Automation at scale

Will hyperautomation replace automation in telecoms?

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Table of

Contents

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Introduction

Automation and hyperautomation

Automation is now firmly established as a priority for CSPs and the telecoms industry in general, but why? For some time, operators have been going 'all-in' to automate processes across the board, but most have been proceeding with strategies based on automating specific processes, in a single domain — which delivers improvements, to be sure, but still doesn't scale the summit of their ambitions.

Other CSPs have sought to unify their automations, mature adoption and penetration in their operations and organisations – using a more incremental approach. Either way, automation has become key to ensuring long-term success, particularly as networks become more complex and virtualised.

Notwithstanding the obvious financial and operational advantages that automation confers, Operators are motivated to automate as this has become 'table stakes' in a highly competitive industry — and the industry has ambitious targets. For example, for many CSPs, the goal is to reach Level 4 or 5 automation on TM Forum's autonomous networks maturity model, as outlined below:

0 Manual operations and maintenance – A system that delivers assisted monitoring capabilities, but dynamic tasks need to be executed manually.

1 Assisted operations and maintenance – The automation executes a specific, repetitive subtask based on pre-configuration.

2 Partial autonomous network – Enables closed-loop operations-specific units based on AI modelling according to certain external environments.

3 Conditional autonomous network – Senses real-time environmental changes and can optimise and adjust itself to enable intent-based, closed-loop management.

4 Highly autonomous network – In a more complicated, cross-domain environment, the system enables decision-making based on predictive analysis or active closed-loop management of service-driven and customer experience-driven networks.

5 Fully autonomous network – A system with closed-loop automation capabilities across multiple services and domains, including partners' domains, over the entire lifecycle.

While this journey presents many challenges, some CSPs already have the end game in sight. Others are earlier in their automation journey. For all, however, one of the key hurdles to overcome on this journey lies in the move from automation to what's known as 'hyperautomation'. In this paper, we'll explain the differences between the two, and compare Automation to Hyperautomation. We will also show how the leap can be made using practical examples.

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Automation

A recap of the basics

Telco automation is an on-going journey, and many CSPs are at different stages. As such, while there is a roadmap and generally agreed definitions of automation, it's worth starting at the beginning and reflecting on what automation means in practice.

At its basic level, automation is applied to specific, often repetitive, tasks or processes and, by automating one or other aspect of these, removes the need for human intervention at each point. In turn, it eliminates human error and optimises efficiency.

Because we are concerned with CSPs, each task or process depends on actions and responses to events in the network (fixed, mobile or converged) or business systems (the BSS and OSS layers that support the network and its customers). In general, there is a finite number of responses – there may be binary choices, there may be many alternatives – but automation is typically contingent upon a software process that determines the appropriate response to a particular event or action.

So, if 'x' happens, do this, but if 'y' occurs, do something else. Context adds to the potential decision tree, as if 'x' happens while 'z' is also

occurring, then the output may be different.

In general terms, automation ranges from instructing another machine to change a setting, or it can mean taking the next step in a process based on entry to a particular field. In all cases, a flow can be defined, with different steps being taken, depending on the inputs received and the overall context of the event and / or process – which determines the outputs or appropriate actions to be taken.

In telecoms, for example, this could mean that an alarm is generated by a core network IP transport router that has a specific meaning – in this simple case, that the router has reached its maximum capacity for a given traffic flow. The response to this alarm (the action taken) demands rerouting of traffic via another resource that does have sufficient capacity, which can also be automated. The automation simply means

that this rerouting takes place automatically without the need for human intervention, because the network has been configured to ensure that alternative routes are available for traffic flow.

Since routers can generate many kinds of alarms, and since the responses to each may be finite, automations to effect the necessary response can be created piecemeal. The same logic can be applied to any network device – router, radio access network, and so on, as well as for systems in the OSS and BSS domains. Alarms and alerts can be converted to actions, while outputs and telemetry data can also be handled by similar principles.

There are, literally, thousands of such tasks that can easily be automated – with the right tools – creating a patchwork of 'point' automations that help manage performance, optimise efficiency, and ensure smooth service delivery.

Advanced automation practices

Similarly, there are more complex processes that touch upon business requirements and offers, and may involve multiple orchestrated automations, as well as requiring technical actions.

For example, when a CSP sells a service, the composition, credit checking, provisioning of all related attributes that comprises the service (whether physical or logical), billing and activation of that service must follow, can all be achieved without leveraging AI or human-interaction. How? It's because, within these processes, there will be discrete automations – all of the flows can be automated and tightly orchestrated — and then integrated.

Another example might involve a customer requesting a new 5G slice, an Ethernet link, or a new fibre connection, which then requires orchestrated automation of the steps required in the flow – from order registration to inventory checks, capacity checks, the delivery of any required hardware, and so on. The whole process is therefore made more efficient through automation - and this reduces the potential for human error, as well as accelerating delivery and reducing order to cash cycles.

These steps are already easily achievable and can push us towards where we want to be – the realm of Hyperautomation.

> *"...in essence hyperautomation means "automate as many business and IT processes as possible". In telco, this means that we need to consider not just automation within processes (adjusting router capacity and flows, based on known alarm conditions, for example), but also automation between processes. "*

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What is hyperautomation?

One widely accepted definition comes from industry analysts, Gartner:

"Hyperautomation is a business-driven, disciplined approach that organizations use to rapidly identify, vet and automate as many business and IT processes as possible. Hyperautomation involves the orchestrated use of multiple technologies, tools or platforms, including: artificial intelligence (AI), machine learning, event-driven software architecture, robotic process automation (RPA), business process management (BPM) and intelligent business process management suites (iBPMS), integration platform as a service (iPaaS), low-code/no-code tools, packaged software, and other types of decision, process and task automation tools.[1]"

While that may seem like a complex definition, in essence hyperautomation means "automate as many business and IT processes as possible". In telco, this means that we need to consider not just automation within processes (adjusting router capacity and flows, based on known alarm conditions, for example), but also automation between processes.

At this point, it's worth distinguishing between workflows and processes – as there is a key difference. A process can be composed of multiple workflows, each addressing a specific task or activity (such as adjusting the capacity of a router). However, a process is actually more related to a set of activities that help you to realise your organisation's goals (such as enabling zero-touch cash to deployment and assurance for a fibre service — converting the customer journey from order to deployment into autonomous workflows — and extending these through service lifecycles). Hyperautomation, then, acts at the level of the process and the organisation, and covers multiple related workflows that support each process.

This means that, even if we have automated workflows and the processes that use them, different processes that are related must also be linked in order to avoid islands of automation. Hyperautomation can therefore be seen as an over-arching approach that brings all of these separate automations, workflows, and processes together, to the greatest extent possible.

1 - https://www.gartner.com/en/information-technology/glossary/hyperautomation

How to
leverage hyperautomation today?

As already mentioned, automation is a journey and can be implemented incrementally. So, hyperautomation does not replace existing automation efforts, it extends them, while offering a roadmap to continue the journey towards the goal of fully autonomous networks (as outlined by the TM Forum's definition).

That's because it combines discrete automations at a workflow or individual process level into a cohesive framework that spans domains and functional areas – for example, OT and IT.

Hyperautomation, though, is essential in enabling CSPs to deliver differentiated services in a dynamic and agile manner. In addition, it's also essential for meeting a growing body of compliance obligations, such as the Telecoms (Security) Act 2021 and the NIS 2 Directive.

"The CORTEX platform provides hyperautomation software, tailored for telecoms and aligned with the requisite mandated governance. It enables frictionless transformation from legacy processes to hyperautomated, agile systems that are dynamic, efficient, cost effective, and free from human intervention and error. It also ensures compliance with all regulatory requirements."

New business opportunities that depend on Hyperautomation

Let's consider a concrete example, such as the process of remotely deploying updates to customer routers. The manual process involves creating a window during which this can take place, isolating the software, remotely accessing each router, deploying the update, and then performing the necessary pre-flight checks before launch. This, of course, can all be automated – but does this equate to hyperautomation?

Consider then the requirement to link that process to ensuring the correct security procedures are followed and compliance obligations are met, recording the updates in the correct logs and work orders, tracking version control, enabling the authorisation of engineers to intervene (should that become necessary), and in many cases, executing either the entire engineering processes, or, if nothing else, just the pre and post change stages, and so on – then we are, in fact, hyperautomating.

Essentially, hyperautomation in this case is providing the organisational goal to deliver zero-touch remote updates AND to do so in accordance with the security and governance processes required – both in terms of compliance and internal organisational requirements. In other words, its unifying different processes into a coordinated whole.

A more complex example would be private networks. The adoption of private networks is booming. Private networks will enable new use cases for CSPs and operators, and drive new revenue opportunities – exactly the sort of opportunities telcos are seeking to target and for which they want to ensure optimum costs and from which they will hope to maximise profits.

According to IoT analysts at Berg Insight, for example, there were an estimated 4,700 private LTE/5G live networks deployed globally by the end of 2024, with a market value of around $1.8 billion in 2024 that's predicted to grow to $8.9 billion by 2029[2]. One of the leading suppliers in the space is, according to Gartner, Vodafone[3] – a major automation customer of We Are CORTEX.

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2 - https://www.iot-now.com/2024/12/06/148416-over-4700-private-lte-5g-networks-deployed-globally-by-end-of-2024/, citing https://www.berginsight.com/the-private-lte5g-network-market

3 - https://www.vodafone.com/business/news-and-insights/analyst-views/vodafone-named-a-leader-in-the-2025-gartner-magic-quadrant-for-4g-and-5g-private-mobile-services

Delivering private networks (and network slices, where required) is a highly complex process. For example, license conditions need to be checked, according to the local regulatory conditions; the RAN infrastructure needs to be planned to meet the local topography and architecture; antennae need to be deployed (which requires site visits, scheduling, work orders, alignment with health and safety regulations and much more); the network core needs to be allocated (a dedicated deployment, or a partition of another); …the list goes on.

But, it doesn't stop there – a private network will be designed to meet very specific performance goals (otherwise, a public macro network would probably suffice…). This means that performance must be assured, with real-time monitoring and optimisation through feedback loops – and backed by an appropriate SLA.

All of these are familiar processes – but customers requiring private networks will expect agile delivery and activation, while meeting the required SLAs. Already, some are experimenting with online service requests that trigger the deployment of slices to support discrete use cases in given locations – the full realisation of dynamic network provisioning isn't far off. But that requires Hyperautomation to deliver those goals. In essence, if CSPs are to target this opportunity effectively and to create profitable private network businesses, they must contain costs and automate to the greatest extent possible.

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Hyperautomation

with We Are CORTEX

The CORTEX platform provides hyperautomation software, tailored for telecoms and aligned with the requisite mandated governance. It enables frictionless transformation from legacy processes to hyperautomated, agile systems that are dynamic, efficient, cost effective, and free from human intervention and error. It also ensures compliance with all regulatory requirements.

CORTEX enables automation at the workflow, process and hyper level. It provides a pathway to hyperautomation, via graceful implementation of discrete automations – and the joining together and orchestration of these to span different processes. You can start with a simple task, such as automating the response to selected network alarms and triggers, and move on, joining these together to form seamless, integrated processes.

Our platform uses process microservices – which means that CORTEX comes with more than 200 pre-built Function Blocks, each providing discrete atomic functions that can be connected as needed to meet automation requirements.

Because flows are reusable, the automations they enable can be repurposed (or accessed) by other processes that need them, at no additional cost – lowering the cost of hyperautomation. It makes it possible to build and combine atomic functions and integrate them to build cross-domain orchestration and achieve hyperautomation.

In fact, hyperautomation with We Are CORTEX also allows CSPs to retain all existing automations – but super-charges them by enabling connection to different, but related, processes, across all relevant workflows in the organisation.

There is no need to rip and replace functioning automations. Instead, the jump to hyperautomation is smoothed – new hyperautomations can exist in harmony with other automations that are then gradually interconnected.

The step to hyperautomation is also necessary if climbing to Level 4 in the TMF's autonomous networks model is an ambition.

Hyperautomation may at first seem to be complex, revolutionary, and costly. But, in reality, hyperautomation is actually a series of automations that can be adopted incrementally. The We Are COREX approach gets to you the goal of hyperautomation, but with a manageable journey that delivers incremental benefits at every step – it's not revolutionary at all, it's evolutionary.

So, it's not hyperautomation instead of automation; it's automation to achieve hyperautomation, all of which can be enabled by We Are CORTEX – accelerating your journey along the TMF automation maturity model.

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