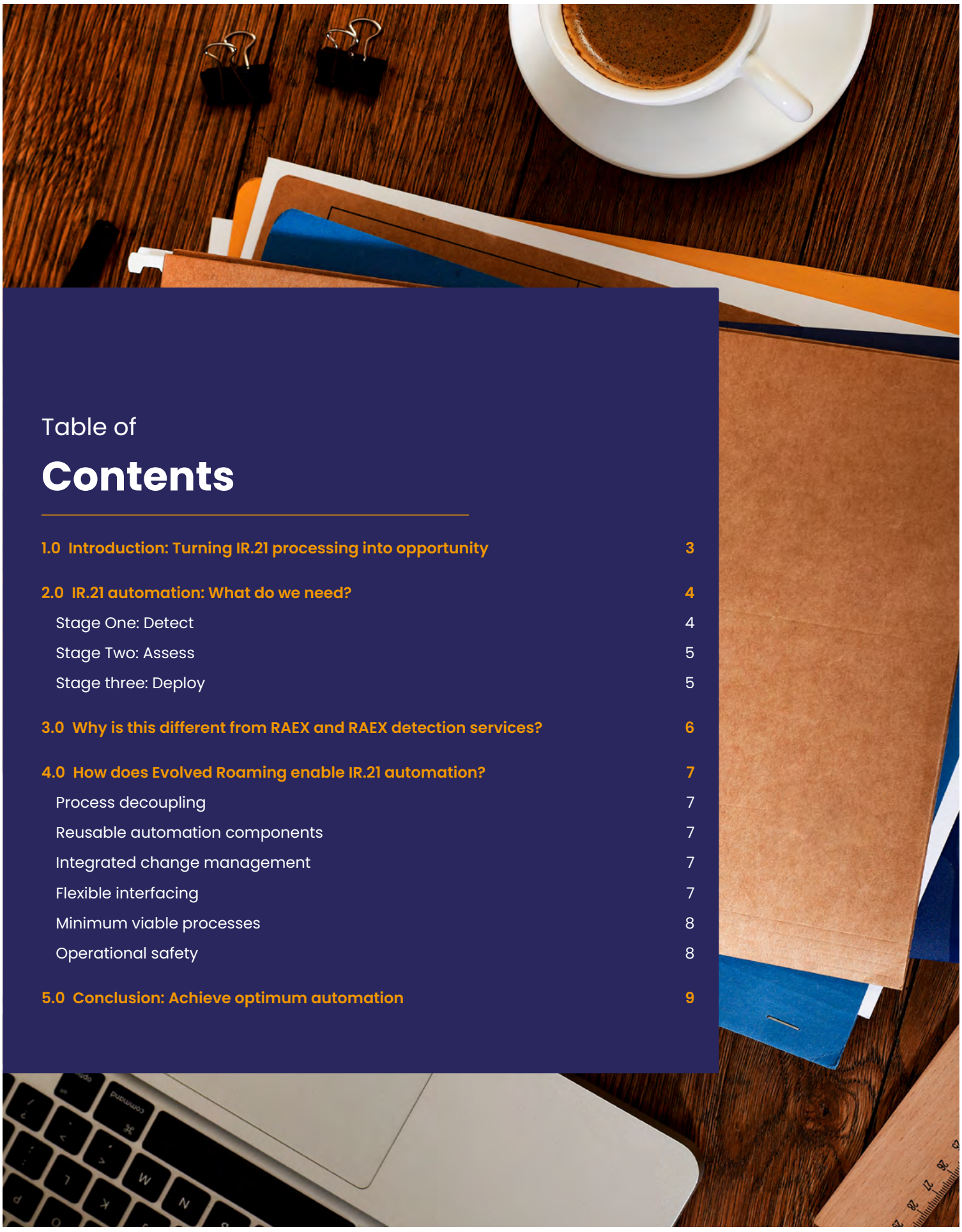
What should the right solution look like?

Evolving IR.21 and IR.85



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Introduction

Turning IR.21 processing into opportunity

Having established in the first part of this series of papers that IR-21 (and IR.85) processing is fraught with friction and therefore ripe for automation, in this second paper, we consider what such a solution should look like in practice. What are the fundamentals that you need to achieve – and what else might a solution offer to turn this complex process into a strategic resource that drives opportunities and adds agility?

As you will be aware, time spent processing IR.21 roaming updates is time that could be better spent exploiting new opportunities.

So, is it possible to turn IR.21 processing into a revenue engine? The answer is: yes.

In this paper, we'll explore what the industry needs to turn IR.21 processing into an opportunity for service differentiation and diversification – and in Part 3, we'll explore the business case for automation in this context, based on new revenue and opportunities that it can unlock.

IR.21 automation:

What do we need?

Implementing changes to each IR.21 and IR.85 agreement has multiple impacts. First, the nature of the required changes that are detailed in a new RAEX (the GSMA's Roaming Agreement Exchange platform) document (or other method) must be assessed and determined.

Second, the network impact of those changes needs to be understood – and, third, the changes need to be accurately implemented, which is where the requested information is translated into configuration updates in the live network.

Essentially, there are three stages to complete:

1. Detect
2. Assess
3. Deploy

So, if we are to automate this process — end-to-end, as a complete workflow that spans all of the affected systems — We need a solution that can handle each of these stages, with the necessary safeguards and governance to ensure compliance with procedures and policies.

This is what the We Are CORTEX Evolved Roaming solution offers – so let's look at each of these three stages in turn.

Stage One: Detect

Everything starts with the automatic ingestion of an updated IR.21 or IR.85 document, typically from the RAEX. This is typically performed via XML/REST API integration, with OAuth 2.0 protection and security.

The current IR.21 for that partner is checked with earlier versions to understand the changes that are required. Changes can be for new network or service configurations, the removal of redundant ones, and modifications to existing settings.

The changes are then checked against security policies, so they can be validated prior to implementation (for example, validating global title ranges for a partner to eliminate call routing leakage).

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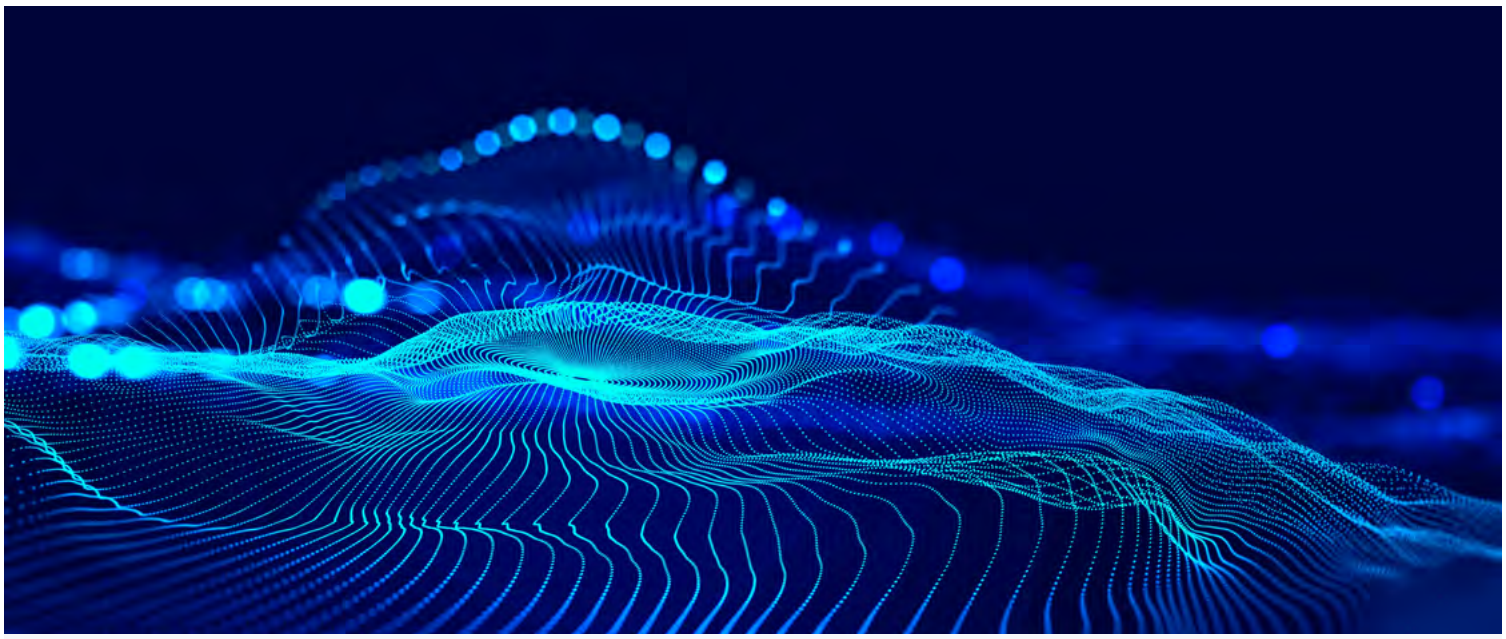
Tickets can then be created in the trouble ticketing systems, summarising the changes in the partner network and OSS/BSS domains, with records captured for the security event log. A complete record of the required partner changes can then be created, as a reference for audit or rollback, and deposited in the Data Audit Store for future use, if required.



Stage Two: Assess

Next, the impact of the required changes needs to be assessed, which is accomplished by querying different network solutions and systems (for example, the HSS / HLR, UPC, IMS, and so on); the element and network management systems (EMS / NMS); inventory systems; billing / accounting systems; and so on, to obtain a comparison with current settings and configurations.

Change orders are created for the ticketing system, either for manual execution by network engineering and IT teams or for centrally tracking what work will be automated (so changes are visible to relevant teams, which can then be used to avoid configuration conflicts), while records are again deposited in the requisite data stores for audit and tracking.

The We Are CORTEX Evolved Roaming solution supports the principles and practices of observability – so that the internal state of the network can be tracked by supervisors as part of the automation process dashboard.

Stage three: Deploy

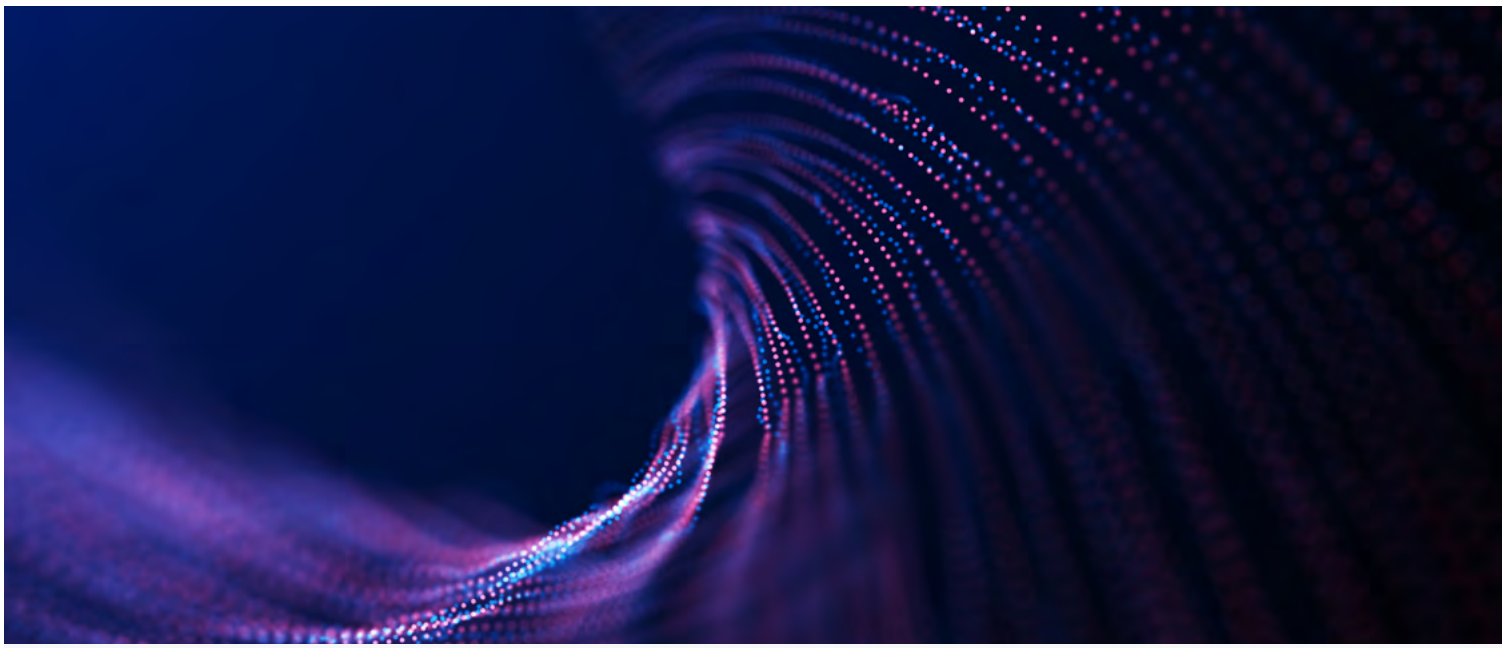
The configuration changes then need to be applied to the impacted systems via the appropriate interfaces. They must be effected in a controlled manner – the CORTEX Evolved Roaming solution runs pre- and post-checks during the Deploy stage, so that the integrity of changes can be verified.

Do they match the specified requirements and have these requirements been met, translated into the relevant network settings and configurations?

Here, the flexibility of CORTEX to support a multiplicity of different methods — protocols, proprietary interfaces, APIs and more — is critical because each network has a different mix of platforms and systems, so integration must be achieved with each to effect the necessary changes at the required speed.

Other platforms, such as the inventory systems and the EMS and NMS also need to be updated with the new configurations so that a single source of 'truth' of the network can be maintained, even if spread across several inventory platforms.

The tickets created are updated with the automated network actions – and, in the event of any malfunction, issues can also be raised for escalation via the relevant system. Similarly, security and audit trails are maintained, closing the loop on the changes to the network as a result of the adjusted IR document.



Why is this different

from RAEX and RAEX detection services?

In the words of the GSMA, the Roaming Agreement Exchange "provides operators with the ability to electronically exchange operational roaming data (RAEX OpData) and commercial roaming rate information (RAEX IOT) using a centralised tool."[1]

In other words, if an operator wishes to change conditions and configurations in its network and for its roamers, the RAEX provides a means of distributing this notification to all partners – in effect, it's a single portal for disseminating information en masse.

It does not, however, enable any of these changes to be implemented or interact with the systems that are responsible for delivering the requested services and updates – that is the responsibility of the partner operators, which must make adjustments appropriate to roaming visitors to their network from the operator issuing the requested changes. So, it helps spread information but that's it – efficient, to be sure, when considering multiple (perhaps hundreds of) partners but merely the first step in the management of such changes.

We Are CORTEX, in contrast, provides a complete solution for the implementation of the agreements – across all partners and for all agreements in place. It acts; it does not simply distribute.

Similarly, some operators use RAEX detection services, often available through SaaS models. While these can handle the Detect stage, they cannot take care of the Assess and Deploy stages – so these must still be completed manually, in the absence of a truly automated end-to-end solution.

1. https://www.gsma.com/get-involved/working-groups/interoperability-data-specifications-and-settlement-group/standardised-b2b-interfaces-specified-by-ids/

How does Evolved Roaming

enable IR.21 automation?

The automated solution depends on several key concepts, briefly, these are:

- Process decoupling
- Reusable automation components
- Integrated change management
- Flexible interfacing
- Minimum viable processes
- Operational safety

We will explore each of these in turn.

Process decoupling

The automation achieved by the We Are CORTEX Evolved Roaming solution is independent of the underlying action – that is, the logic of the step to be implemented does not depend on the inputs and outputs but rather the outcomes expected.

If data collection and presentation is required, this is achieved by adapting the automation component to the specific ways in which the data is retrieved and distributed.

The required action will therefore remain constant, even if the systems from which the data is captured (and its interfaces) or to which it is fed (and its interfaces) change – preserving the automation even while the network evolves and as existing solutions are replaced or upgraded.

The process is unchanged.

Reusable automation components

The We Are CORTEX Evolved Roaming solution is based on reusable 'process fragments'. These perform specific tasks and can be composed into chains or process flows. Each, however, is independent of the systems with which it interacts, so they can be ported across different systems, simply by reconfiguring them to match the required interfaces – and can be copied from one flow into another.

This also enables a gradual approach. So, parts of processes can be automated, step-by-step, and common functions can simply be reused on other processes where similar actions are required.

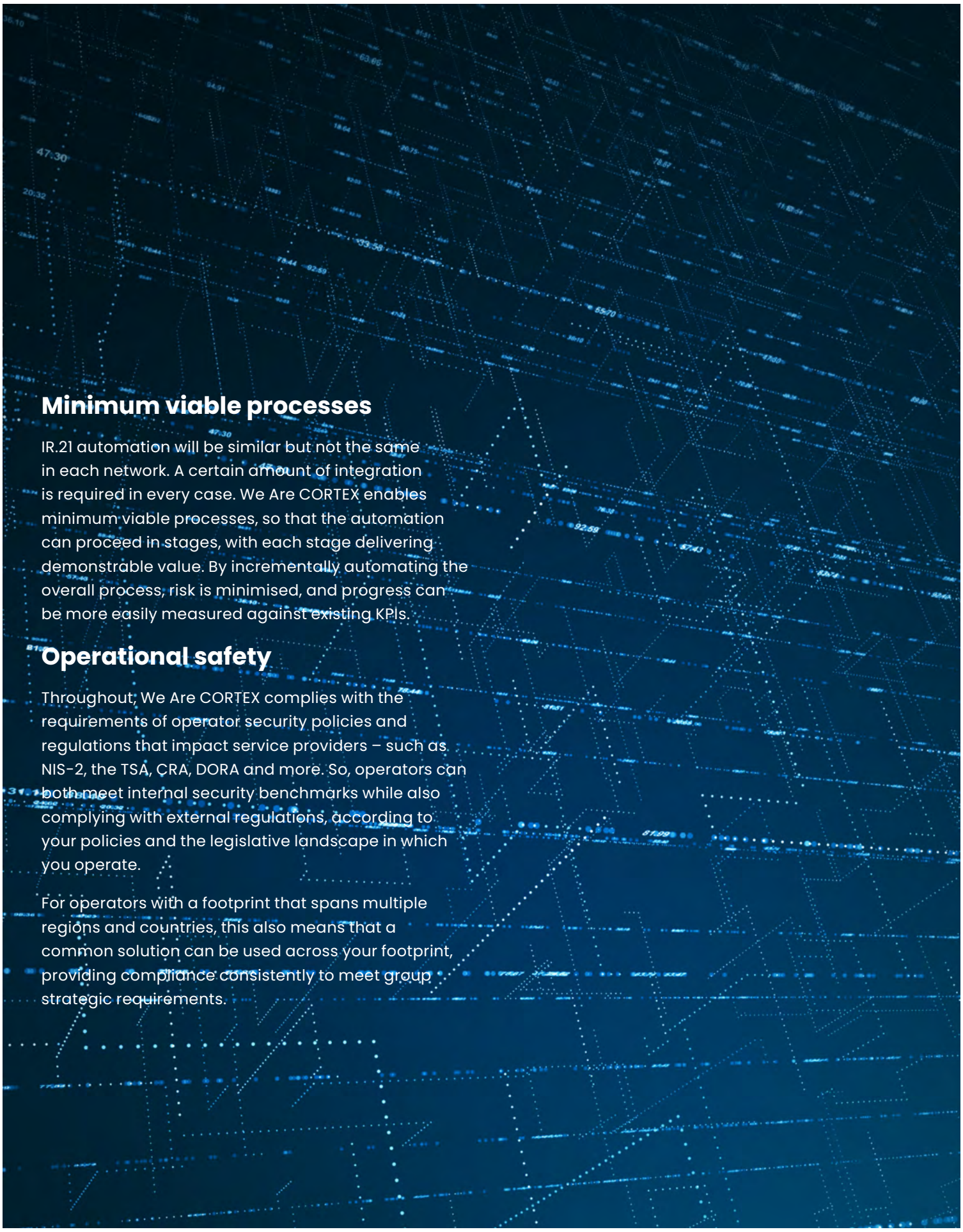
Integrated change management

Control, tracking and governance are critical to enable users to enforce policies and to comply with procedures and relevant legislation that demands strict audit controls. Tracking also allows rollbacks to be initiated, where required, with full visibility of the impacts and users that have made the relevant changes.

Flexible interfacing

We Are CORTEX natively supports an extensive range of interfaces, which means that adaptation to the different systems deployed in heterogeneous networks can be accelerated, using the libraries available.

These interfaces include vendor-specific control / command layers, as well as standard network protocols and common API formats – providing universal compatibility and ensuring complete control over the vendor footprint.



Minimum viable processes

IR.21 automation will be similar but not the same in each network. A certain amount of integration is required in every case. We Are CORTEX enables minimum viable processes, so that the automation can proceed in stages, with each stage delivering demonstrable value. By incrementally automating the overall process, risk is minimised, and progress can be more easily measured against existing KPIs.

Operational safety

Throughout, We Are CORTEX complies with the requirements of operator security policies and regulations that impact service providers – such as NIS-2, the TSA, CRA, DORA and more. So, operators can both meet internal security benchmarks while also complying with external regulations, according to your policies and the legislative landscape in which you operate.

For operators with a footprint that spans multiple regions and countries, this also means that a common solution can be used across your footprint, providing compliance consistently to meet group strategic requirements.

Conclusion:

achieve optimum automation

We Are CORTEX provides a complete solution for evolving IR.21 and IR.85 to achieve optimum automation, based on end-to-end orchestration of processes across the required flow, regardless of the underlying solution set and vendor mix in your network.

The Evolved Roaming solution can be deployed incrementally, allowing operators to focus on the points of greatest friction while maintaining visibility of the overall goal. In turn, this allows you to validate that the solution complies with the complex series of operations required for the implementation of each change to an IR agreement.

But once in place, what other benefits can you expect? In Part 3 of this series, we'll explore the business case behind automation of roaming agreement updates – which is based on opportunity and agility.

How can automation drive revenue with existing products and services – and unlock emerging opportunities?

Get in touch to find out how.

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