COMARCH

Artificial Intelligence
at the Heart of Business 4.0

White Paper

What you will learn:

- The needs and requirements of modern telecoms
- How to deal with the decreasing availability of industry experts
- The role of automation in digitization
- How to take advantage of the multi-criteria search model

The activity in the telecommunications industry and broadly understood IT is also a form of business that will be subject to the Business 4.0 revolution.

Modern telecommunications networks have a set of network elements concentrated in several domains that are already implemented or ready to provide services. Therefore, it is a set with specific, but not the same in every place, possibilities to provide services determined by the parameters of devices and their location. Thanks to that, the needs of launching a new service may be quickly adressed.

Of course, these limitations also apply to virtual resources because the available physical layer may have parameter restrictions or be in an inconvenient location. At the same time, operating services can be "oversized" in the area of implemented parameters, and using a complicated switchover it would be possible to obtain the appropriate parameters of both services.

The lack of experts' workforce.
Is there a way to overcome this challenge?

Such a complex task should be resolved by operators' experts with knowledge and experience, and guided by the operator's service provision policies. The education of such an expert is usually expensive, their number is limited, and they are not always able to respond to such described challenges with sufficient speed. Depending on the person performing the task, it is different even with a high organizational culture. This is because each one of us has his or her own favorite ways. Any change in the policy in the area of service provision requires assimilation and gives rise to temporary periods that implement a mixture of old and new policies. Gathering and applying the experience of such experts is also difficult, the Knowledge Base and best practices needed to train new employees are created slowly.

What are the needs of modern telecoms?

The answer for this comprehensive task are the systems that are able to define the criteria for selecting resources for the implementation of a defined service and its parameters based on a resource model independent of the provider. At the same time, it takes into account other, non-technical requirements, such as:

- availability of appropriate specialists and their operations at concrete locations, planning and calculation of the expected time of process completion

- the operator's business policy, geographical allocation rules based on the division of duties

The way of system's work is mostly based on a service/resource directory. The criteria for finding suitable resources are service requirements and technological limitations, such as limitations on the available CPU/memory/storage. The whole process is based on Artificial Intelligence technology – MULTI-CRITERIA search for the best solution.

Artificial Intelligence technology: Multi-criteria intelligent resource allocation

By automating the creation of new service topologies based on existing resources in near real-time, you are able to dynamically respond to changes in service requirements. At the same time, the result is the automatic construction of a service structure with optimal parameters and its implementation without delay. This is done by automating and accelerating the end-to-end orchestration process in this area. This is a step toward the implementation of the postulate of a self-sufficient, autonomous network. These advantages allow for more dynamic and frequent changes in topology and thus enable the introduction of optimization processes in the areas of predictive response to performance degradation or reduction of the carbon footprint in the environment, and flexibility of energy consumption from the point of view of grid

quality. The proposed solution provides the implementation of typical, most common use cases appearing in 5G networks:

- creating a new network slice in the 5G Standalone (SA) network

- specifying the arrangement of virtualized network functions to match the SLA or KPI associated with the service profile for a slice

- implementation of a virtualized NG RAN network, especially in an Open RAN environment

- network optimization/repair – automatic reconfiguration of the service topology

Benefits of using MIRA

The ability to share the Knowledge Base. Owners of private networks and slices will not be able to afford to educate their experts with the appropriate knowledge to respond to subnets.

The implementation of Artificial Intelligence will enable the creation and improvement of expert knowledge and transfer or resell for use to partners.

The work of systems according to the same principles, criteria, and policies of the network owner, and the repeatability of the results bring a new quality to the analysis and implementation of optimization activities.

The model-based approach allows to easily and quickly automatize the process of ordering a service, ordering subnet/slice configuration, monitoring, maintenance, and optimization.

The system can be adjusted for both large DSPs, and smaller ones, as well as a local network operator or small slice.

Let Comarch support your processes and reduce costs

The Comarch's main objective is to move away from the rigid assignment of functionality to products, and thus Telco/IT industry verticals, or processes defined by TM Forum. Morevoer, activity is focused on creating functionalities that meet the requirements in many places of the process and communicate in a standard way with each other. In this area, the proposed solutions are in line with Open Digital Architecture. Among the OSS solutions, it also responds to a fully new situation. The proposed solutions are no longer clearly dedicated to Communication Services Providers or Digital Services Providers, they are also addressed to owners of their own private networks and slices, and to companies outside the sector, which, however, want to have a greater impact on the communication and IT services used through the Cloud and 5G technologies. An inseparable element of all elements of the solution is deep automation of system activities, based on artificial intelligence and machine learning systems, which is the hallmark of Comarch's proposal, in all areas and proposed ways of implementation.

In this case, Comarch use a multi-criteria search model based on variable criteria, with different priorities. Therefore, it is also an offer for the campus, factory, and other networks, which are built on the basis of the resources of more or less traditional infrastructure and service providers. One of the most important business problems is the possibility of a dynamic response of service providers to the changing needs and requirements of the end customer. This applies to the creation of new services and to the change of parameters of existing services.

The methods of reducing the impact on the environment, and in this case also the costs can be freely selected through changes in policies, can be different. With changing demand for performance, you can control the parameters of elements, e.g. the clock frequency of processors, through their number, for example, by turning off some elements. Of course, the areas with greater freedom of shaping are virtualized networks and the proposed Comarch solution is fully prepared for the analysis and modeling of such networks.

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ABOUT COMARCH

Since 1993, Comarch's specialist telecommunications business unit has worked with some of the biggest telecoms companies in the world to transform their business operations. Our industry-recognized telco OSS and BSS products help telecoms companies streamline their business processes and simplify their systems to increase business efficiency and revenue, as well as to improve the customer experience and help telcos bring innovative services to market. Comarch's customers in telecommunications include Telefónica, Deutsche Telekom, Vodafone, KPN and Orange.

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