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MAPPING NETWORK DEPLOYMENTS TO BEST PRACTICES DESIGN RECOMMENDATION

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ABSTRACT

Presented herein are techniques for computing a profile alignment score that indicates how closely a customer's network deployment is adhering to a company's best practices design and validation guides. The profile alignment score is calculated based on telemetry information associated with the customer. According to techniques described herein, customers are provided a report that includes the profile alignment score and outlines areas in which the customer's deployment may be improved.

DETAILED DESCRIPTION

Some companies provide validated design, deployment, and validation profile guides outlining solutions and guidance for different customers deploying different networks. However, there is no feedback mechanism to allow the customer to quantitatively and qualitatively determine how well their deployments are aligned to best practices design and validation guides.

Validated profiles and validated designs are published to identify best practice solutions, architecture guidance, and scale guidance for different customers based on the industry verticals from which they come. Today, customers have no visibility into knowing how closely they are adhering to the published recommendations when they begin their deployments. While some customers have the knowledge and ability to follow the documentation, other customers may not. In some cases, going against recommendations for a long period of time may lead to use of deployments in an unsupported or non-compliant manner (e.g., unsupported functionality, scale or architectural non-compliance, etc.).

Presented herein are techniques for calculating a "profile alignment score" to provide customers insight into how closely they are adhering to published guidelines. Controller-based networks collect telemetry data indicating how a customer is using a company's digital network architecture. Data such as network topology, applications used, scale, etc. are captured by cloud-based dashboards for every customer. Techniques described herein leverage this data to cross-verify customers against a checklist of items, and provide customers with an alignment score (e.g., on a scale of 1 to 10). Individuals may be provided a report indicating their alignment score and, if the score is low, an indication of the areas that caused the score to be low. The alignment score will be visible for every customer on their respective digital network architecture controllers to help guide the network operations and design teams to identify what can be improved to align their deployments to the best practices.

Figure 1, below, is a diagram illustrating a process of calculating the alignment score and displaying the alignment score for a user.

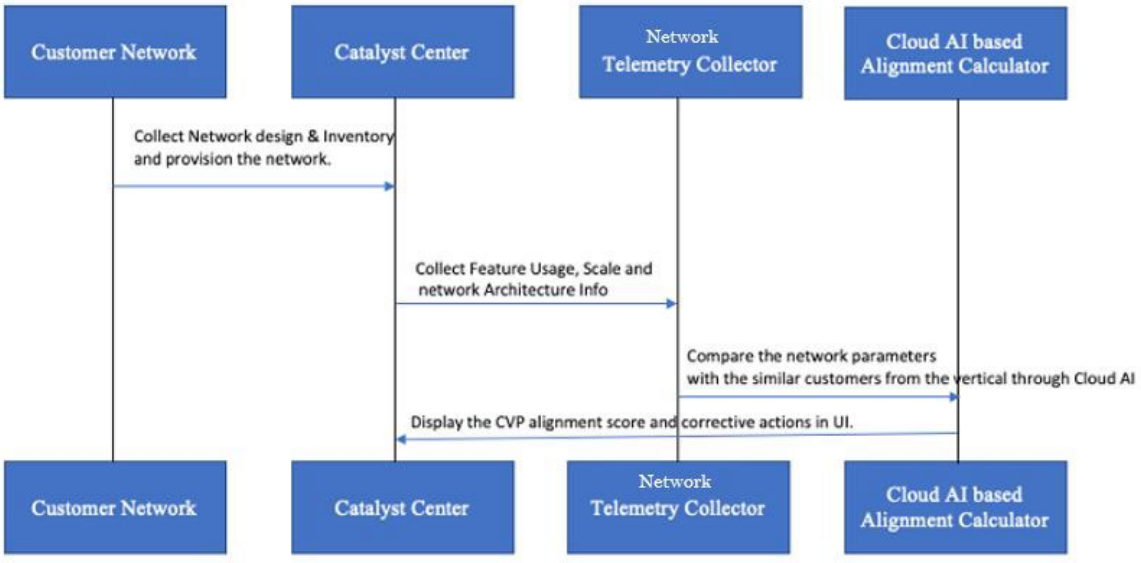

Figure 1: Example Process of Calculating and Displaying an Alignment Score

Figure 2, below, illustrates parameters used to calculate the alignment score.

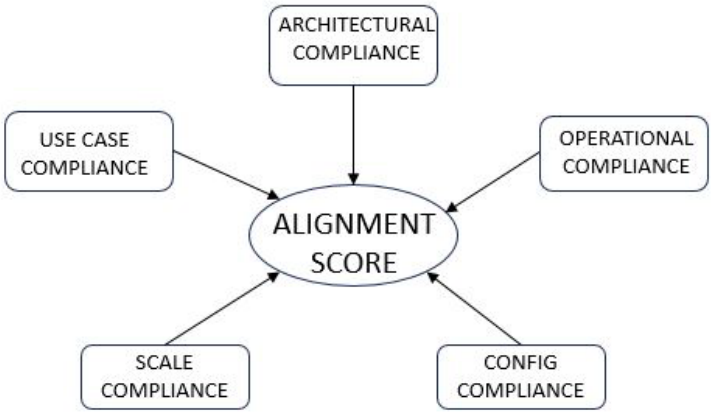

Figure 2: Example Parameters Used to Determine Alignment Score

As illustrated in Figure 2, digital networking architecture telemetry information (e.g., architectural compliance information, use case compliance information, operational compliance information, configuration compliance information, scaled compliance information, etc.) collected from the customers is leveraged to calculate the alignment score. In the future, artificial intelligence (AI)-based analytics may be performed, and information collected from a customer may be compared and contrasted in an anonymized manner to other similar deployments from customers in similar industry verticals to provide greater insights into better deployment practices.

According to techniques described herein, a customer's number of interfaces, rather than a number of devices, is collected to calculate a digital networking architecture scale. Topology data (e.g., number of members in a stack, depth/tiers in the network, dual/multi homing, port density, number of access points on a switch etc.) may also offer additional insights. All of these finer details will be used in computing an alignment score indicating how a customer's network aligns with best practices.

According to techniques described herein, the alignment score will be visible to every customer on their digital network architecture center controller based on a checklist of items that an alignment score application will automatically process for every customer based on the industry vertical to which they belong. The alignment of a customer deployment with the published guidelines will be determined based on the areas of (A) network architecture, (B) use cases and operations, (C) configuration, and (D) scale. Each

of these areas is associated a checklist that is used to determine the alignment of a customer deployment with the guidelines. According to techniques described herein, validated profile guides will be updated with recommended software versions and newly supported use cases and scale. The customer data will also be mapped in relation to the validated profile guide for that version. In this way, a customer's network is evaluated based on the most recent guidelines.

A. Network Architecture

The network architecture indicates how closely the architecture of the network across various sites of the customer deployment map or align with what is typical for a customer from the customer's specific industry vertical. Techniques described herein include a cloud-based insights dashboard that provides key insights into information like topology, site hierarchy, devices per site, roles of devices in each site, etc. to help qualitatively ascertain the alignment of the network architectures of all of the customer's sites to best practices.

B. Use cases and operations:

Use cases and operations monitor whether the applications used by a customer's digital network architecture are typically used by customers in the same vertical and whether anything is being used in a manner inconsistent with recommendations for a product.

The cloud-based insights dashboard provides key insights into which applications are used or not used by the customer, which features within a specific application are turned on or off by the customer, and whether there are operations or issues in a customer's network assurance that are not typical for a customer in that vertical.

C. Configuration:

The configuration area monitors whether there are any configurations in a customer's network that are not supported to be working together. In this case, the customer may have configured them due to lack of awareness or knowledge about an incompatibility.

D. Scale:

Although well-defined scale documents have been published, frequently customers run into problems by not consulting the published data sheets. Fixing a problem after it has occurred can be very expensive. The cloud-based insights dashboard provides key insights into scale metrics, such as number of devices, number of virtual networks, number of clients, etc.

In summary, techniques described herein provide reassurance to networking customers by showing the customers what they are good at and what they need to improve. In the long run, customers will save a lot of money by reducing mistakes in design and operations. Companies will additionally benefit from lesser churn and greater confidence that customers enjoy their products and solutions.