The evolution of monitoring service: RNP Case

Emmanuel SANCHES[1], Paulo JÚNIOR[1]

[1]RNP – National Education and Research Network, Rua Lauro Müller, 116, 11th floor, Botafogo, 22290-906, Rio de Janeiro, Brazil. Tel: +55 21 2102-9660, Fax: +55 21 2279-3731, Email: {emmanuel.sanches, paulo.junior}@rnp.br

Abstract

This work aims to share the experience of RNP [1], the Brazilian NREN, in promoting the evolution of its monitoring service, whose main motivation was to establish greater control of the operation and better management of communication infrastructure of the Brazilian academic network, as well as its aggregated communication and collaboration services. Initially RNP adopted a new open source tool [2] in 2015, based on Nagios' [3] code, implementing a distributed architecture with remote monitoring agents (poller), providing a high resiliency service and new functionalities, according detailed on figure 1.

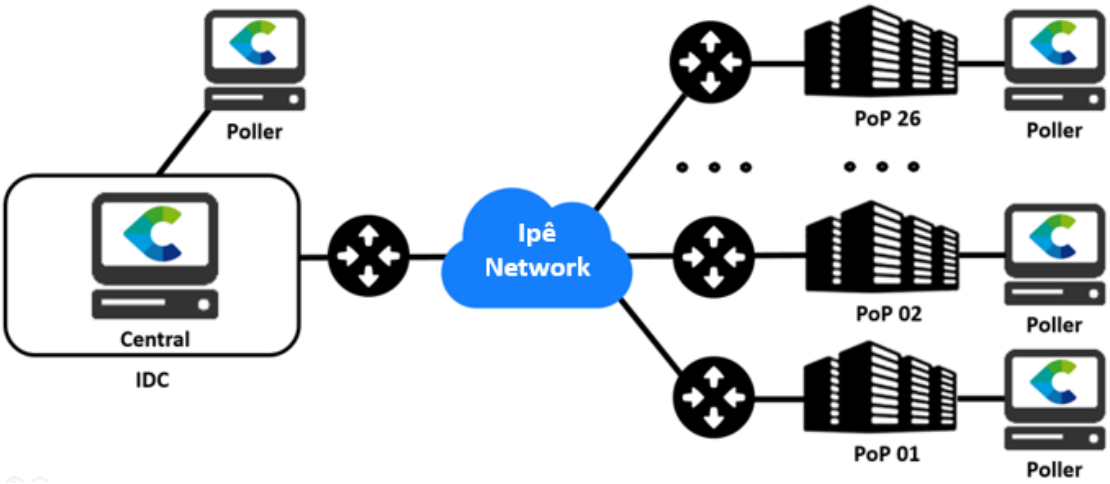

Figure 1. New distributed and resilient monitoring architecture

Another action was the implementation of monitoring for RNP's advanced services, reducing the time identification of failures, the NOC (network operation center) operators started to contact the appropriate technical teams more assertively, reducing the recovery time and providing a better support and services management [4]. Additionally, in a change in its work philosophy, RNP decided to increase significantly its support and monitoring responsibility, including customer connections with the academic network within its monitoring scope, which was previously in the responsibility of the teams in each of the 27 PoPs (national points of presence). The figure 2 shows the initial scope monitoring done by RN (CORE) and the follows layers included in order to provide proactive support for its PoPs (DISTRIBUTION) and the connectivity of 1,237 customers (ACCESS).

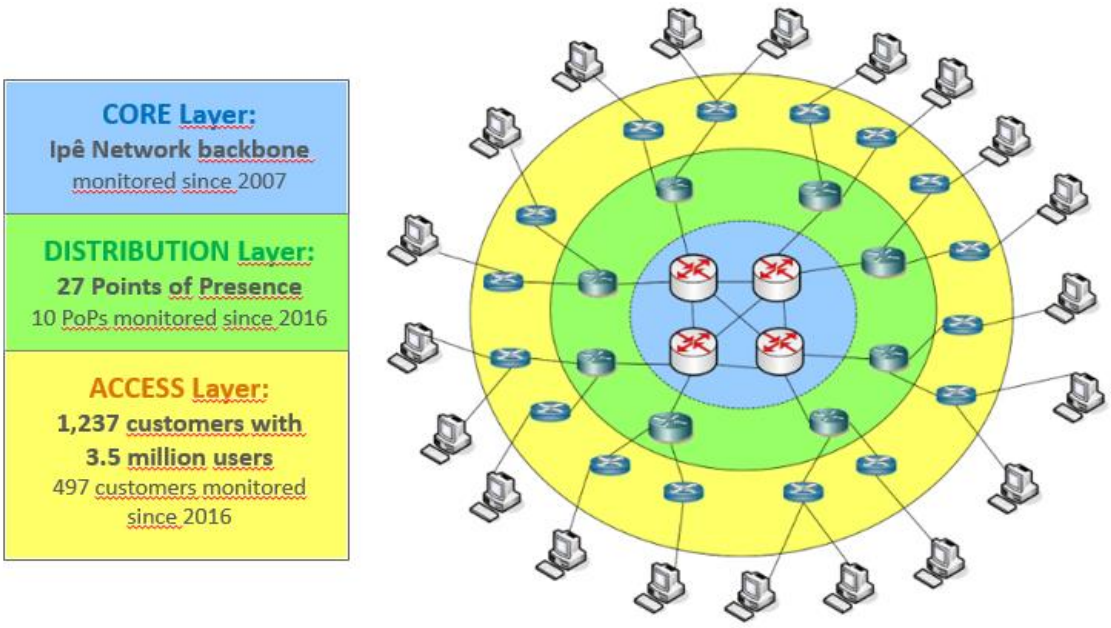

Figure 2. Monitoring scope expansion including additional layers

Therefore it describes the improvement needs identified, the adopted strategy, its action plan over two years, its difficulties, the solutions found and the benefits that this evolution of the monitoring service [5] provided for the RNP infrastructure management and consequently for its customers. Finally, it points out what the next steps that RNP is going to have in order to continue the improvement.

Keywords
Network management, service monitoring, distributed architecture, Centreon, RNP

References

1. Rede Nacional de Ensino e Pesquisa, https://www.rnp.br/
2. Centreon Documentation, https://documentation.centreon.com/
3. Josephsen, D., Galstad, E.: Nagios : Building Enterprise-Grade Monitoring Infrastructures for Systems and Networks. Prentice Hall (2013)
4. Magalhães, IL., Walfrido, BP.: Gerenciamento de Serviços de TI na Prática: Uma Abordagem com Base na ITIL, Novatec (2006)
5. Ewaschuk, R., Beyer, B.: Monitoring Distributed Systems: Case Studies from Google's SER Team. O'Reilly (2016)

Biographies

Emmanuel Sanches is an IT Manager at National Education and Research Network (RNP) since 2014. Graduated in Electronic Engineering at Federal University of Rio de Janeiro, Brazil – UFRJ (1990) with MSc. in Systems Engineering and Network Computing at COPPE/UFRJ, Brazil (1994). Has 15 years experience as IT Manager, being 9 as IT Manager for Latin America and Spain at Wärtsilä (2002-2010). Also worked 4 years as Network Infrastructure Coordinator at Embraer (1998-2001) and as teacher (Network Computing) at State University of Rio de Janeiro – UERJ, Brazil (1997).

Paulo Júnior is an IT specialist with experience as Solutions Architect, Technical Coordinator, Red Hat Enterprise Linux Consultant and Red Hat Linux Instructor. Also worked as Infrastructure Manager at Oswaldo Cruz Institute – FIOCRUZ, Brazil (2000-2010) and now working at National Education and Research Network (RNP) since 2013. Graduated in Systems Analysis at Estácio de Sá University, Brazil, pos graduation student in Project Management and with four Red Hat Certifications (Instructor, Engineer, System Administrator and Virtualization Administration).