puppet

Skyguide integrates air traffic management and training systems with Puppet

CASE STUDY

skyguide

Industry:
Aviation

Background: Skyguide provides air navigation services for Switzerland and adjacent airspace in France, Germany, Italy and Austria. It has 1,500 employees and safely guides 1.2 million civil and military flights a year through one of Europe's most complex airspaces.

Challenge: Reduce the cost of IT maintenance while improving efficiency as new capabilities are released to support high safety requirements.

Solution: Using Puppet Enterprise, Skyguide will set up a continuous delivery pipeline through all environments (training/simulation, test, production) with automated deployment and configuration of its air-traffic management system (ATM) system.

Results:

- Ability to use the same solution between air traffic operation and training systems
- Reduced risk of failure in the configuration of training scenarios and simulations
- Lower cost and simpler maintenance than using in-house tools
- Faster, easier automated configuration management

No room for failure

Nicolas Fujise, a senior project manager at Skyguide, is part of a team that is in charge of the project to deliver the new VCT2 Radar Simulator CH allowing them train their ATCO (air traffic controller). The training program is intensive. Simulations start at 6 a.m. and run until 11 p.m., seven days a week, year round. There can be as many as 80 people undertaking training in two or three shifts a day. It is imperative that the simulation does not fail.

Nicolas Fujise, senior project manager, Skyguide, explained: “The simulation has to run stably. Should the simulator not be available due to breakdown during conversion training, air traffic controllers might not be able to finish their session and therefore would not be allowed to work on active operations with the new system. This could cause direct consequences in terms of the air traffic management capacity.”

To keep the system running as efficiently as possible, Skyguide needed a tool that could configure working positions quickly and reliably. Under the previous regime, it had relied on in-house tools but the cost was high. It required in-house developer resources for maintenance and evolution. Since it was a solution specific to the training/simulation environment, deployment packages from other environments could not be reused and had to be recreated. Skyguide was already using Puppet Enterprise with its new air traffic management system and decided that using the tool for training would help to streamline its operations and training.

Raimund Brandt, an application deployment automation manager at Skyguide, said, “The decision for Puppet was taken on an enterprise level. In order to benefit from a seamless continuous delivery pipeline in all environments, we decided to use Puppet also for training/simulation.”

Puppet Enterprise overcomes configuration challenge

Puppet was more than capable of managing the complexity of the training environment, even with several default configurations in use at any one time. Use could range from one simulation with 12 controllers and 12 pilots interacting in the same scenario, to six trainees in six individual training sessions with different configurations. Skyguide needed to be able to configure working positions and allocate a certain version of the software to each with a certain air traffic scenario.

“All configuration is done by a platform operator, not a technical engineer, so we have an easy-to-use tool with a graphical user interface,” Fujise explained. “This can configure the simulation room and allocate a version of the software and dedicated training scenario data to each working position. When this is done, it defines which version of the application is deployed on which host. All the data is fed into Puppet, and Puppet takes care of changing all these configurations on up to 600 hosts.”

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Each training session lasts about 50 minutes, so configurations are changed frequently. In some cases, all the software needs to change, and for others, only training scenarios data need to be updated.

Fujise stated: “For example, we have a certain software version for unit training that can be used during five months, because we want to train them in a stable environment, and outside of this we have some implementation projects that require some training of new ATC (Air Traffic Control) functionalities with another software version that we need to be able to deploy.”

Why Puppet Enterprise?

“Using Puppet’s standardized industrial configuration management solution allows us to set up our training sessions dynamically on our new Switzerland-wide radar simulator. Beyond our training environment, we have streamlined our new DevOps toolchain based on Puppet Enterprise, reaching from our test environment to our operations and training teams. The solution has played an important role in enabling us to meet the quality, repeatability and insurance rules we must follow for all our training,” said Nicolas Fujise, Senior Project Manager, Skyguide.

> **“Instead of concentrating on infrastructure for deployment and configuration, we can focus on one side on the actual code for deployment and on the other side how to extend the deployment solution with Puppet to other environments striving for a continuous delivery pipeline.”**
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> **Raimund Brandt**, application deployment automation manager at Skyguide

Top outcomes from using Puppet

- **Simplified management of up to 600 hosts**
- **Improved system stability, preventing interruptions to ATC training**
- **Streamlined deployments between operations and training**