|  |
| --- |
| Knot: Instant productivity for Kubernetes  **Antony Chazapis**1#\* and Angelos Bilas1,2  1 Institute of Computer Science (ICS), Foundation for Research and Technology - Hellas (FORTH), Greece  2 Computer Science Department, University of Crete, Greece  # Presenting author: Antony Chazapis, email: chazapis@ics.forth.gr  \* Corresponding author: Antony Chazapis, email: chazapis@ics.forth.gr |

abstract

Knot is a Kubernetes frontend, with a focus on facilitating data science activities. It includes a complete set of web-based tools to help you unleash your productivity, without ever needing to use the command line. At its core, the Knot dashboard supplies the landing page for users, allowing them to launch notebooks and other services, design workflows, and specify parameters related to execution through a user-friendly interface. The dashboard manages users, wires up relevant storage to the appropriate paths inside running containers, securely provisions multiple services under one externally-accessible HTTPS endpoint, while keeping them isolated in per-user namespaces at the Kubernetes level, and provides an OAuth identity service that can also be integrated with external identity providers. The Knot installation includes JupyterHub, Argo Workflows, Harbor, and Grafana/Prometheus, all accessible through the dashboard.

Knot has been developed by CARV in the context of the H2020-funded EVOLVE project, but has since matured and is now used in several projects, including TITAN, where it provides multi-user notebook access to a large server with 4 A100 NVIDIA GPUs. Another installation at CARV is available for all FORTH users, which leverages the power of multiple servers, providing nearly 100 CPUs and several GPUs. Knot is open source and available at GitHub, along with full installation instructions and usage