

# Gain predictive maintenance of public physical infrastructure

With PROinfra from PROFI Engineering Systems AG

*"With high-quality software PROinfra for supporting the maintenance of infrastructure, dare to step into the digital future. Digitize all maintenance, optimize conservation measures, avoid damage, and reduce costs sustainably."*

**Stefan Held**

Technical Lead PROinfra  
PROFI Engineering Systems AG

**PROFI Engineering Systems AG helps public sector organizations avoid defects and damage to physical infrastructures by making maintenance requirements predictable with an enterprise-ready, modern, secure, and scalable open platform.**

## Reduce the complexity and cost of maintaining public physical infrastructure

The maintenance of public physical infrastructures is a complex and often costly challenge, usually accompanied by urgency to resolve issues that arise. The maintenance of structural infrastructure is characterized by non-transparent data, unclear conditions, and scarce resources. Consequently, maintenance predictions are hard to achieve as the data needed for risk analysis and damage avoidance is not available.

Achieving the predictive maintenance of physical infrastructure such as bridges, buildings, roads, and street lighting, can be achieved with a modern, cloud-native software architecture that uses technologies such as machine learning (ML) and real-time analysis of data based on comprehensive monitoring to recommend actions to avoid defects and damage before they occur.

## Maintain structural infrastructure with containers

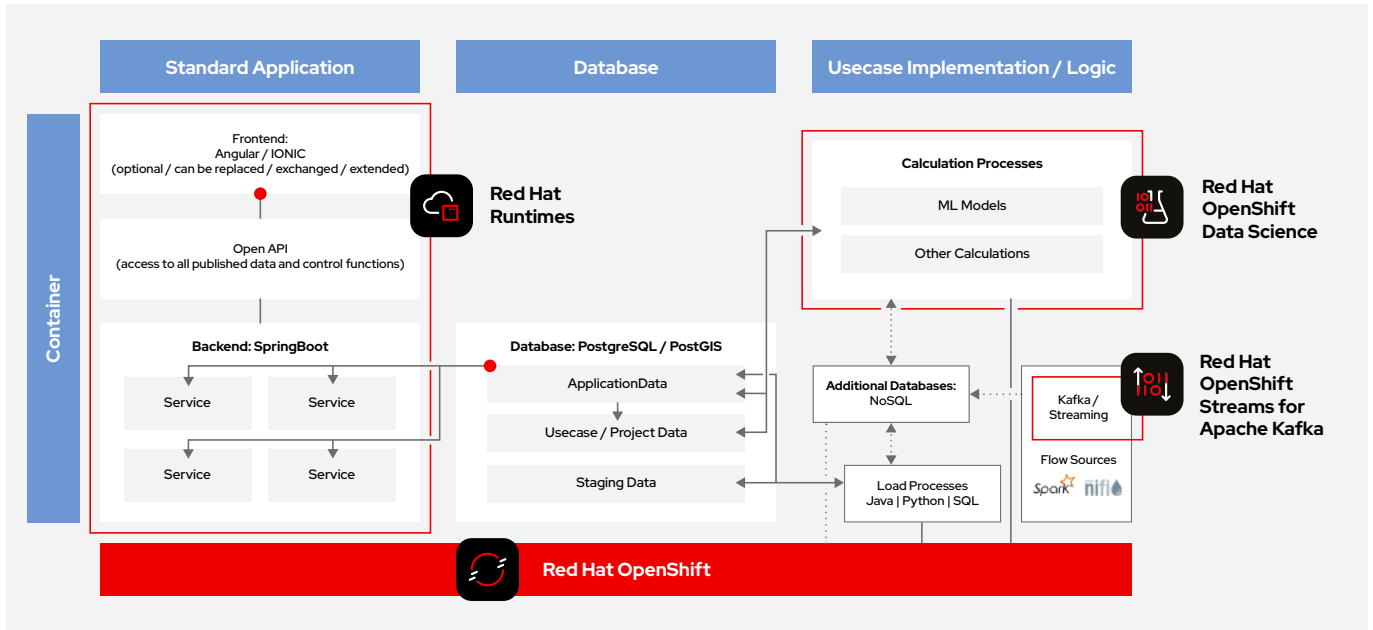
PROinfra is a ML model that recognizes patterns from a set of data, which can then be used to make predictions. Powered by geographic information system (GIS), a system for capturing, storing, checking, and displaying data related to positions on Earth's surface, it uses modern technologies to facilitate the maintenance of public physical infrastructure.

Built on Red Hat® OpenShift® and Kubernetes, the PROinfra containerized app provides this in a proven, stable and secure manner. Due to continuous and iterative development of the ML model powered application with OpenShift Pipelines and deployment automation with OpenShift GitOps, PROinfra offers an efficient, consistent, and fast working platform for development, training, testing, and deployment

With PROinfra, public sector organizations responsible for the management and maintenance of physical infrastructure benefit from:

- ▶ ML-based consolidation and preparation of structured and bulk data.
- ▶ Management and monitoring of maintenance processes.
- ▶ Data processing and machine learning.
- ▶ Data visualization and interaction.
- ▶ Real-time analysis and monitoring of object parameters.
- ▶ Automatic detection of irregularities and prediction of error status.
- ▶ Development of recommended actions.
- ▶ Calculation of an object's default status and detection of drift.
- ▶ Intelligent instructions to solve errors.

The following diagram illustrates a reference architecture for PROinfra:



### A digital future for physical infrastructure management

By implementing PROinfra, public sector organizations benefit from a consistent, simple, and cost effective way to manage maintenance so that:

- ▶ Maintenance can be planned more flexibly and precisely.
- ▶ Damage can be fixed before it becomes a problem.
- ▶ The best type of construction can be identified from a maintenance cost point of view.
- ▶ Durability of infrastructure can be analyzed.
- ▶ Time until infrastructure reaches a critical state without further maintenance works (the decay index) can be predicted.
- ▶ Maintenance backlogs can be addressed.

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### About PROFI engineering AG

Headquartered in Darmstadt, Germany, for over 35 years PROFI AG has supported its customers with high-quality solutions for the optimization of IT processes and system landscapes. Its experienced data and software architects and consultants accompany enterprises and public entities on their digital journey - from the IT strategy to the implementation and operation of the systems and platforms. [Learn more.](#)



### About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

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