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Enabling a Secure Industry 4.0 transition for the Textile Industry with OpenStack based Edge Clouds

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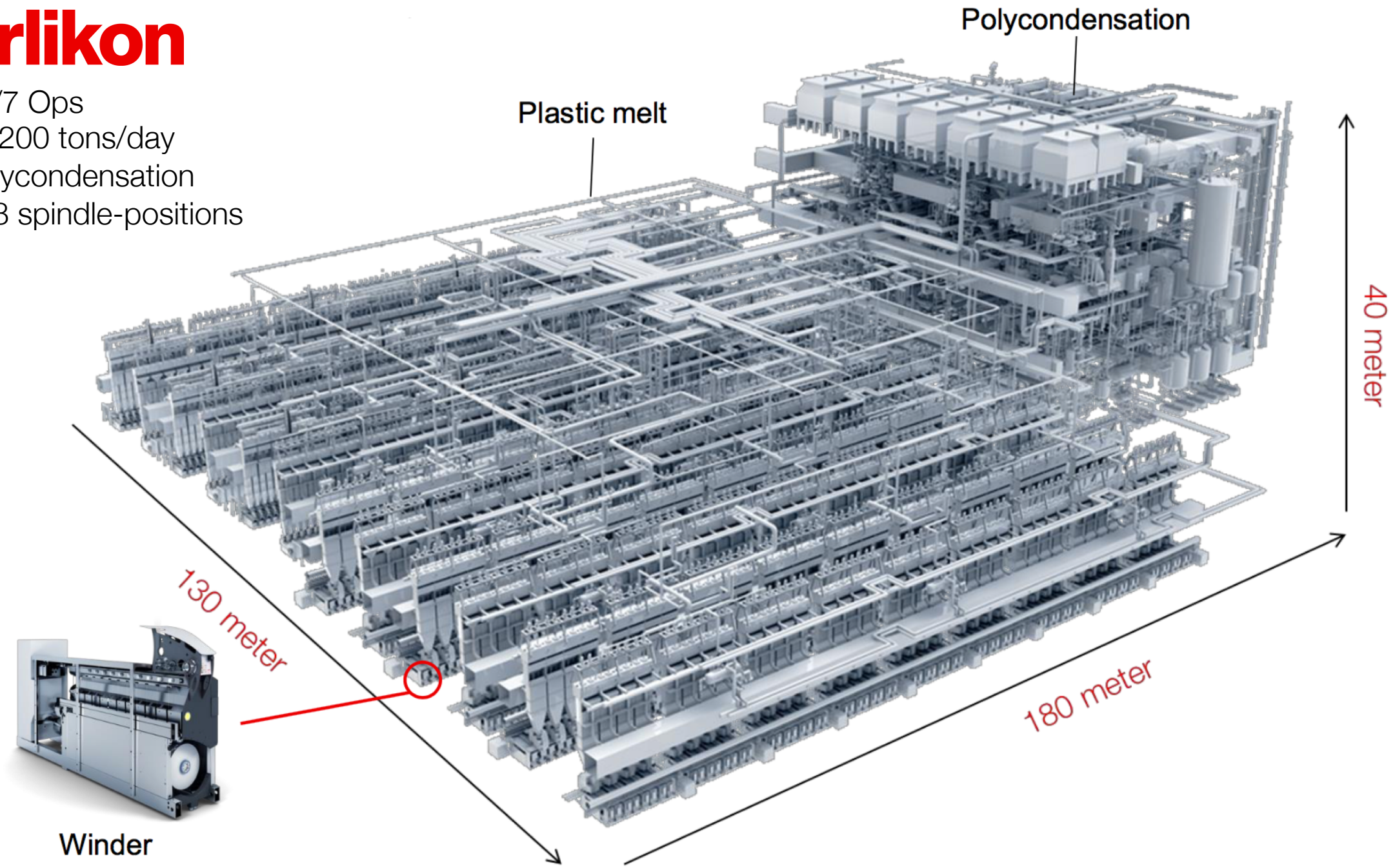
- 24/7 Ops
- 3x 200 tons/day Polycondensation
- 648 spindle-positions



Daily output: 365.000 spindles (each 15 kg) > equals one train with 275 carriages (length 4 km)

Challenges

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- Replacement of existing, physical hardware
  - Windows XP Workstations in use today
    Up to 100 PCs per factory
  - Non-redundant systems for monitoring of machines to be replaced by a redundant system

- Enhancing the monitoring of machines (Plant Operation Center)
  - Local data aggregation
  - Remote analysis
  - Increase Availability

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Challenges

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- Provisioning of new functionality for existing machines
  - Enhancing functions of existing control systems, e.g. labeling
  - Machine Learning
  - New features

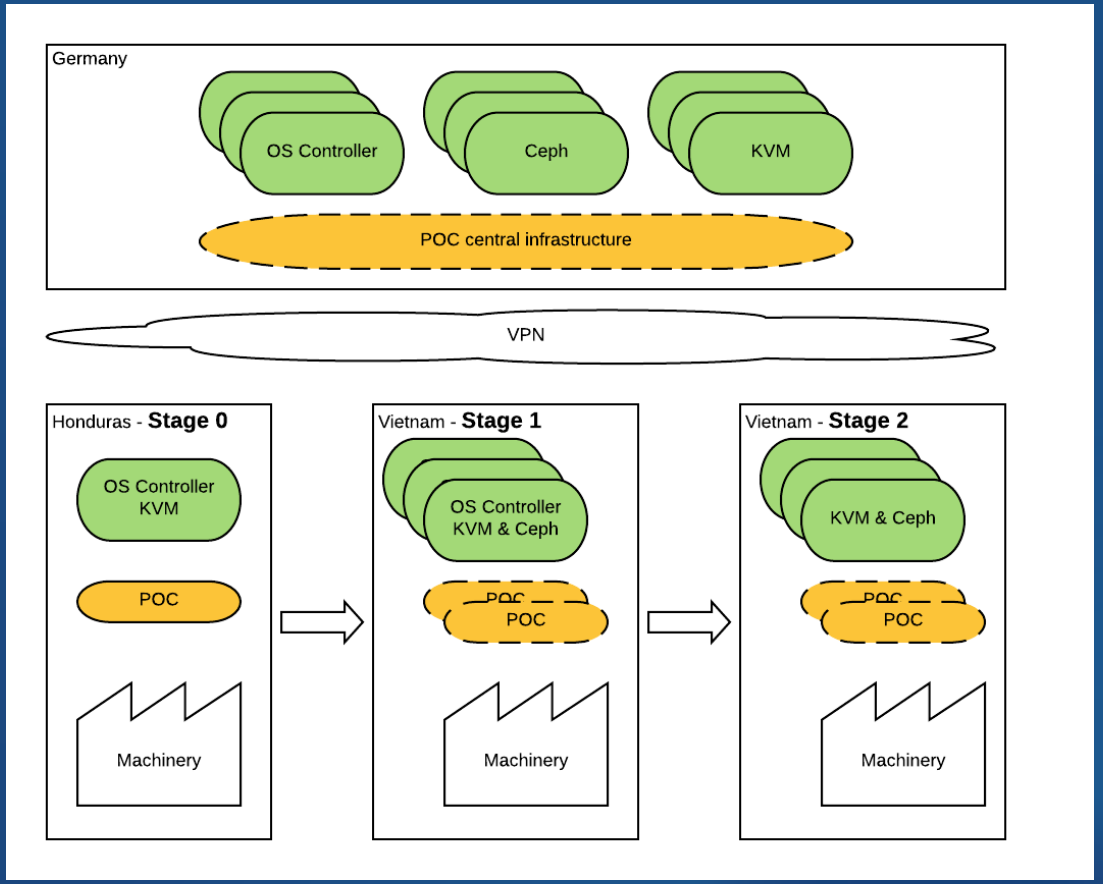
- Modernizing the infrastructure
  - Software delivery in Docker containers
  - Virtualization

Solution

- Hyperconverged solution

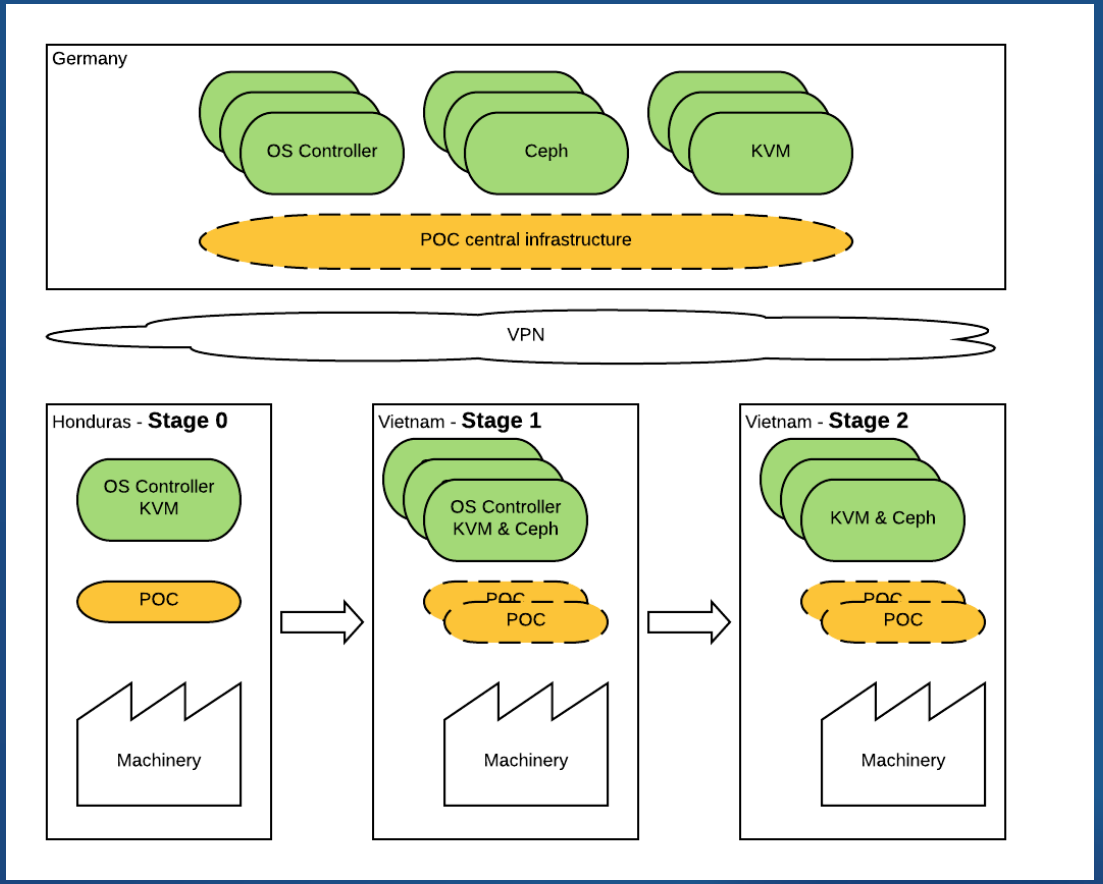
- Controller in OpenStack
- Compute Node
  - Where VMs will be provisioned
- Storage Node
  - Hosting the block storage via Ceph

- Fully-redundant setup incl. redundant 10 Gbit/s switch-stack



Flexible Deployment

- 1-Node variant (XS)
  - Functionality of a Cloud based on a single server
  - Economic solution; ideal for testing
- 3-Node variant (Edge / S)
  - Fully-redundant setup, can be upgraded with additional nodes
  - Incl. redundant Ceph Setup



Implementation

- Deployment, Support and Management by ScaleUp Technologies in partnership with Betacloud Solutions

- Solution is based on OSISM by Betacloud Solutions

Benefits of the solution

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- Consistent setup
  - From a 1-Node setup to Multi-Node clusters
- Use of established, standardized APIs by using OpenStack
- Compute resources can be supplied directly in the factory
  - No dependencies by connecting to public clouds via Internet, etc.
- Remote management
- Customized HA solution for existing legacy systems

Pilot: Century Synthetic Fiber Corp.

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- First pilot customer of Oerlikon
- Factory in Vietnam
- Deployment of existing control software in a near „HA mode“
- Replacement of existing system for labeling of bobbins
- OpenStack cloud was put into production a few weeks ago

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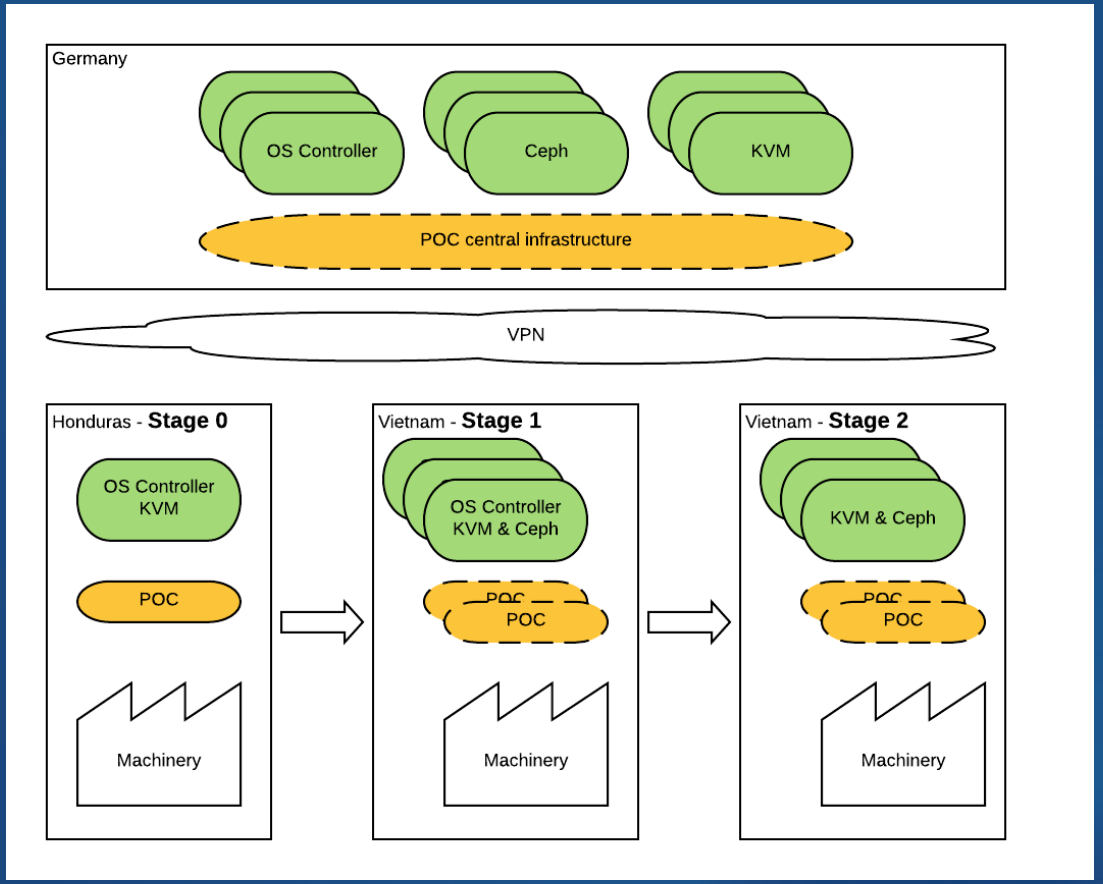
Outlook

- Offloading the OpenStack control plane to a central location
- Streamline the process of deployment / maintenance when running 10+/50+/100+ edge cloud instances



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Questions?

It‘s time for your questions.

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