

3 December

CONTAINERS TODAY

Stockholm

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The Service Hotel

How to design a Container platform with Docker

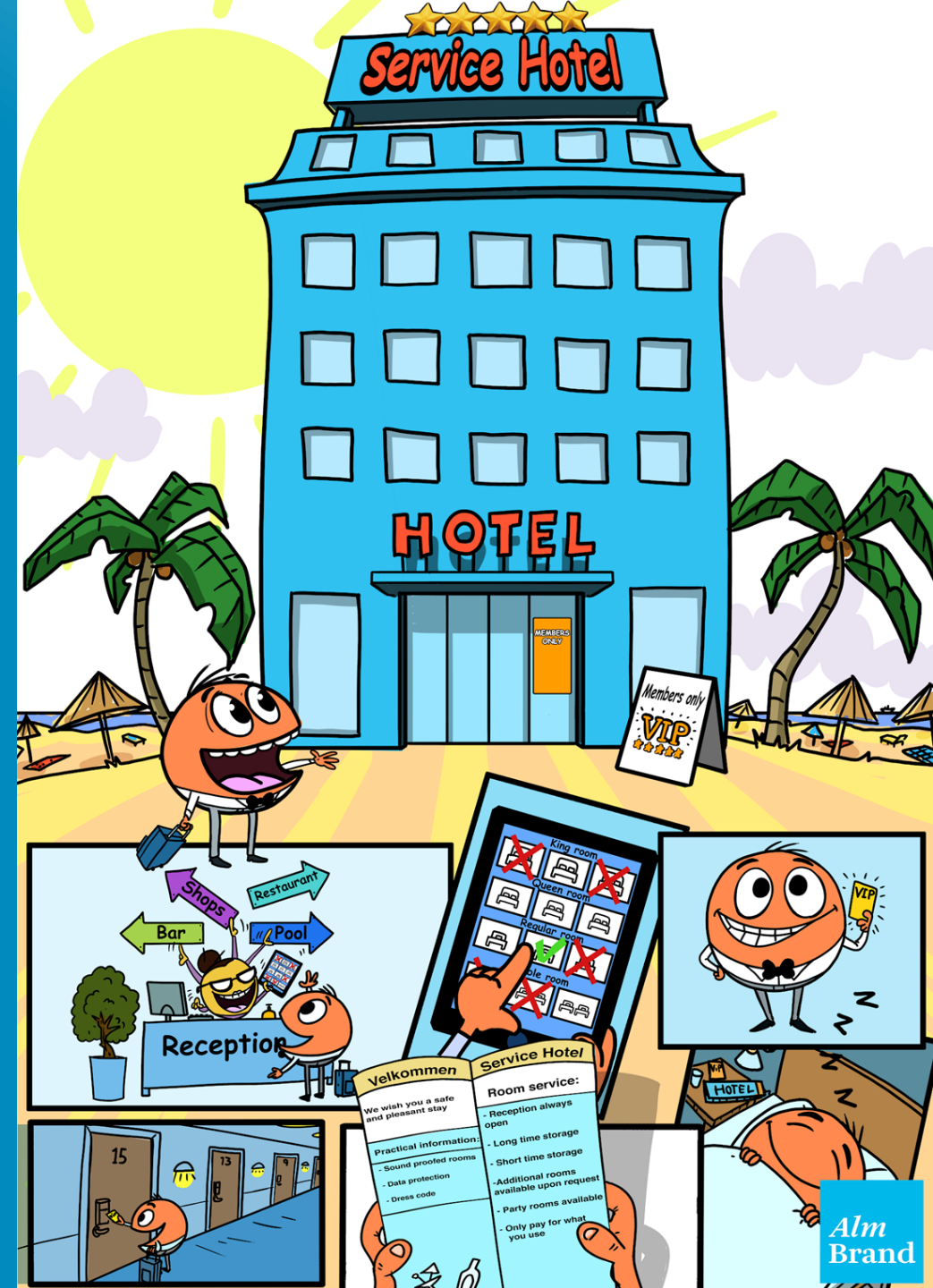
id



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groups=2013 (alm-brand) ,2018 (docker-captains)
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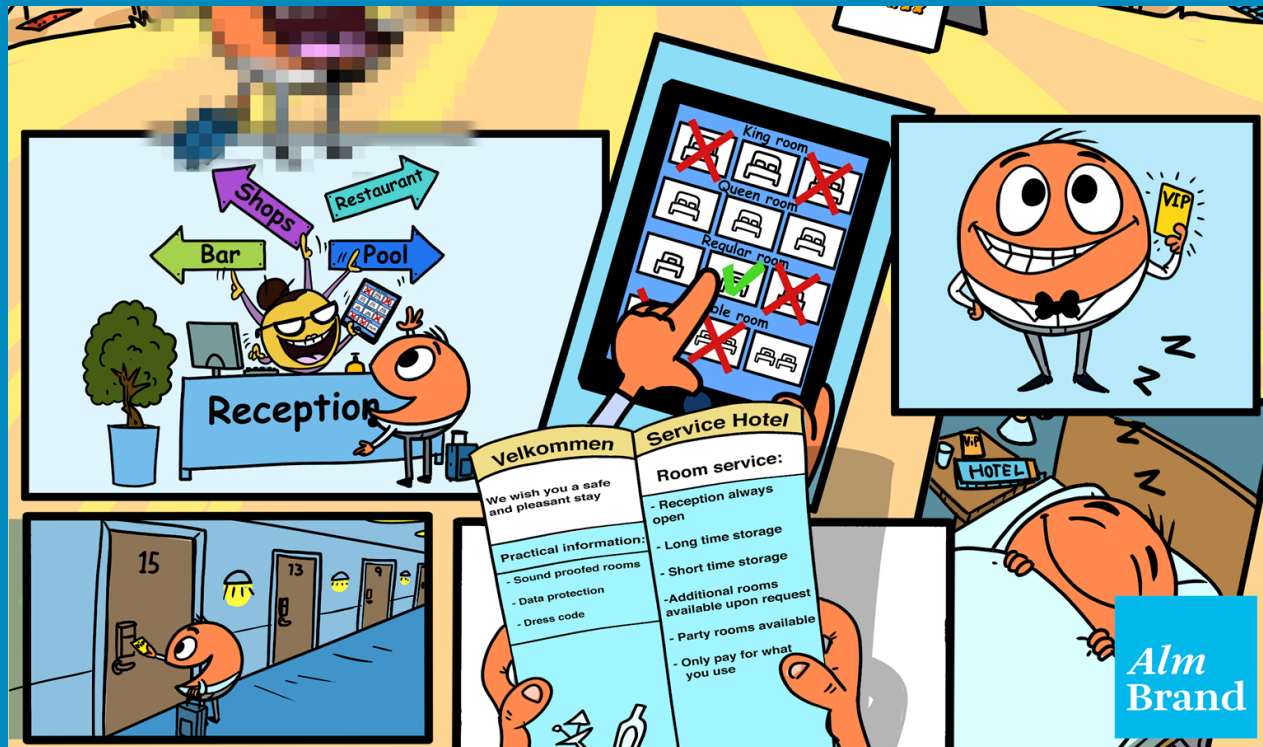
General concept

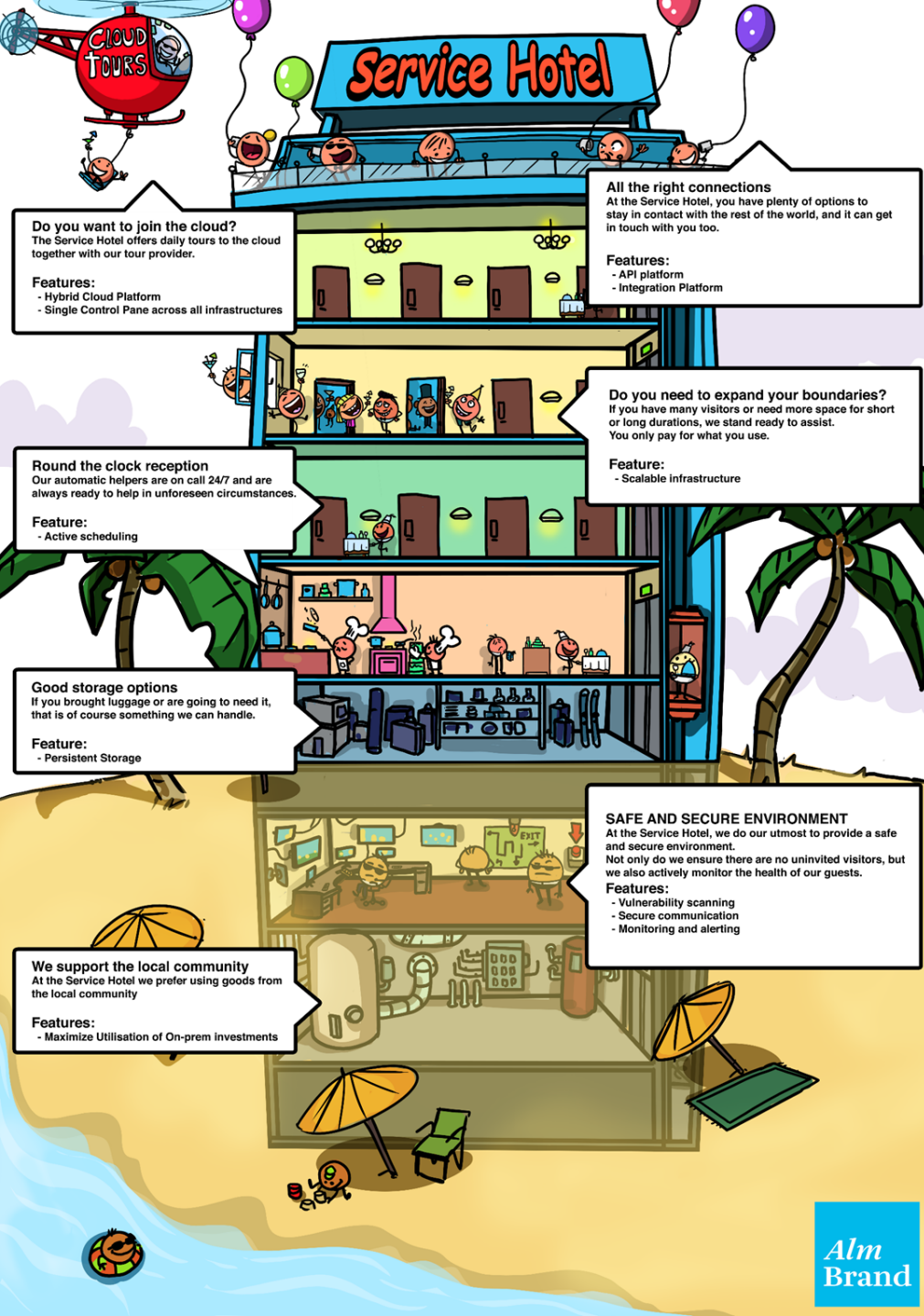
- The aim is to make it as easy as possible to Do The Right Thing™ with as few obstacles as possible in the 80% most common cases
- It serves as the deployment target for a variety of workloads, provided they adhere to the hotel rules
- Languages/stacks are onboarded with assistance from the Platform Team
- The Service Hotel fits into a larger map of "Where to do what?"



The 80% most common cases

- Optimized for throughput
- The easier the happy path is, the more likely users are to choose it
- Leaves more time for handling special cases, further speed up happy path





Do you want to join the cloud?
The Service Hotel offers daily tours to the cloud together with our tour provider.

Features:

- Hybrid Cloud Platform
- Single Control Pane across all infrastructures

All the right connections
At the Service Hotel, you have plenty of options to stay in contact with the rest of the world, and it can get in touch with you too.

Features:

- API platform
- Integration Platform

Do you need to expand your boundaries?
If you have many visitors or need more space for short or long durations, we stand ready to assist. You only pay for what you use.

Feature:

- Scalable infrastructure

Round the clock reception
Our automatic helpers are on call 24/7 and are always ready to help in unforeseen circumstances.

Feature:

- Active scheduling

Good storage options
If you brought luggage or are going to need it, that is of course something we can handle.

Feature:

- Persistent Storage

SAFE AND SECURE ENVIRONMENT
At the Service Hotel, we do our utmost to provide a safe and secure environment. Not only do we ensure there are no uninvited visitors, but we also actively monitor the health of our guests.

Features:

- Vulnerability scanning
- Secure communication
- Monitoring and alerting

We support the local community
At the Service Hotel we prefer using goods from the local community

Features:

- Maximize Utilisation of On-prem Investments

Feature overview

- Divided into “above the ground” and “below the ground”
- Existing as well as planned features
- Focus on high-level features and concepts rather than implementation specific terms
- Each feature can be loosely associated with a traditional hotel feature

Kitchen and piccolos: Round the clock reception/service



- In order to ensure we keep our services running, Docker Swarm ensures we keep having the requested number of containers
- Scheduling placement constraints allow us to simply indicate a deployment stage (“dev”, “qa”, “prod”), and only nodes in that stage will run the deployed service
- Infrastructure services are deployed in “global” mode to have one instance on every node

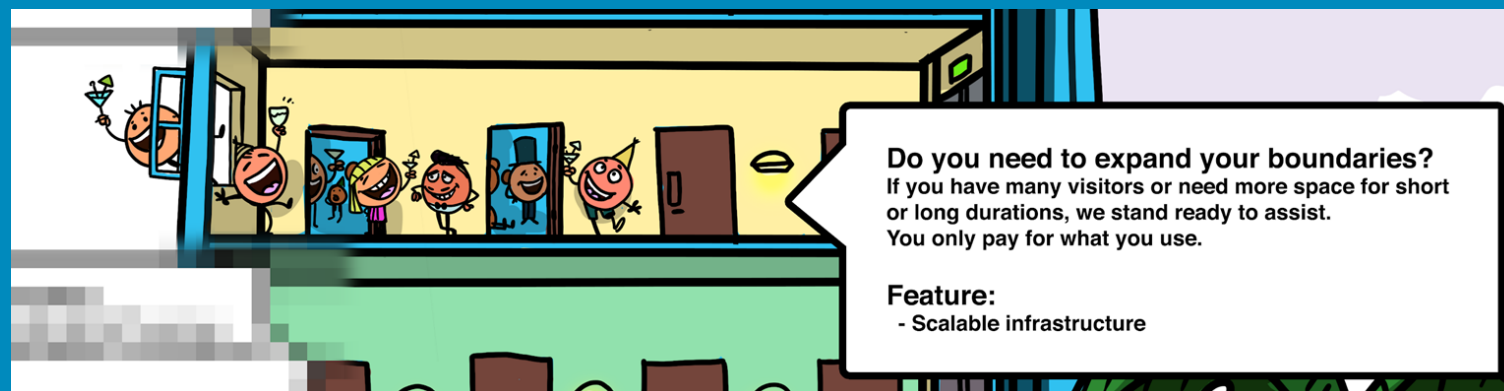
Boiler room: Maximizing utilization of existing on-prem investments

- Alm. Brand has its own data centres
- > 99.5% virtualized workloads
- Previously, over-committing implied instability and crashing apps, with difficult troubleshooting
- Containers don't magically reduce the load, but allow isolating services from each other



Book a whole floor: Infrastructure as code allows for horizontal scaling

- Packer, Terraform and Ansible combine well to build, test and deploy your infrastructure the same way as apps and services
- There are many ways of doing this, ours is just one ([link to comparative talk](#))
- Chargeback is something we're looking to add to the platform, to help make investment costs more transparent



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Long-term luggage storage: Persistent stateful services

- Using a Docker volume plugin for our storage provider, we support persistent storage in simple setups for Redis, Postgres and others
- If a container or entire node goes down, Swarm will schedule the container on another node in the same stage (based on placement constraints) and the same volume will be mounted
- We have not yet provided high-availability clustered storage options; rather, we expect the consuming services to fail gracefully and recover fast

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Penthouse: API and integration platform



- With API and integration services being the most senior guests at the hotel, templates and standards are well established
- Creating a new API endpoint and deploying to production takes a matter of minutes; just have to code the logic
- A *very simple* chat bot creates source code repos in GitLab, Docker image repos in Docker Trusted Registry and replies back to the user in seconds; again, paving the happy path for the 80% most common cases

Security crew: Monitoring and alerting for security and health

- Vulnerability scanning of every pushed Docker Image reports back any CVEs to the developer directly in the merge/pull request
- Monitoring is auto-enabled through service discovery (Consul+Prometheus)
- Access to secrets stored in Vault are subject to audit logging and policies
- Automated mutual TLS is a Coming Soon™ feature of the Service Hotel ([Vault+Swarm plugin](#) and policy writing required)
- A fine balance between agility and control; good base level => fast track



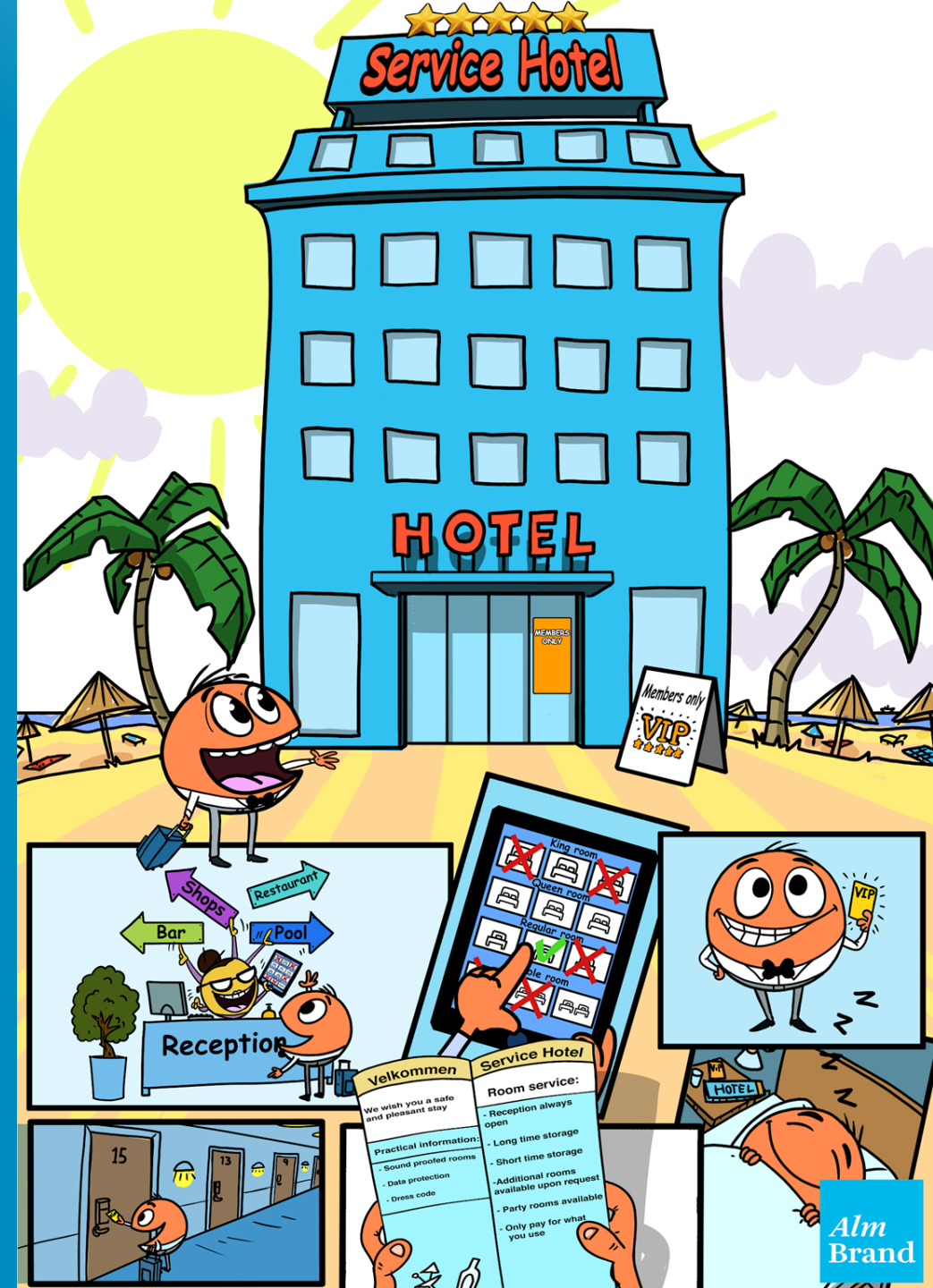
Tour partners: Cloud portability

- Containerized services are portable by design
- We've taken care to design the underlying services to support running on-prem as well as in the cloud
- A centralized control plan has pros and cons
- Federated App Management looks interesting
- We're not there yet



Recap

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Questions?