Anuket RA2 - Kubernetes Reference Architecture

Update & Next steps

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Agenda

- Anuket RA2 Lakelse release – what’s new?
- Survey - items for Moselle:
  - infrastructure monitoring/telemetry
  - security
  - application LCM
- Open discussion: multi tenancy et al.
Anuket – Lakelse: Released

- M1 Release definition – 29<sup>th</sup> June 21
- M2 Scope Freeze – 31<sup>st</sup> August 21
- M3 Content Freeze – 19<sup>th</sup> October 21
- M4 Proofreading – 16<sup>th</sup> November 21
- M5 Rel. Readiness – 30<sup>th</sup> November 21
- M6 Release – 4<sup>th</sup> January 22
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<thead>
<tr>
<th>Chapter</th>
<th>Status</th>
<th>Notes</th>
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<tr>
<td>Chapter 01 - Overview</td>
<td>Complete</td>
<td></td>
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<tr>
<td>Chapter 02 - Architecture Requirements</td>
<td>Lots of SME feedback</td>
<td>Requirements – from RM</td>
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<td>Chapter 03 - L2: High Level Architecture</td>
<td>Lots of SME feedback</td>
<td>CaaS building blocks</td>
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<td>Chapter 04 - L3: Component Level Architecture</td>
<td>Lots of SME feedback</td>
<td>Specs for clusters: Nodes, sizing, K8s control plane, Networking &amp; plugins, storage, workload reqs.</td>
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<td>Chapter 05 - Security Guidance</td>
<td>Lots of SME feedback</td>
<td>Security policies for CaaS</td>
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<td>Chapter 06 - Special Interest Group level requirements</td>
<td>Still developing content</td>
<td>Maps specs to K8s SIG features tested by Functest</td>
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<tr>
<td>Chapter 07 - Gaps, Innovation, and Development</td>
<td>Lots of SME feedback</td>
<td>What’s missing from the ecosystem</td>
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<td>Appendix A - Guidance For workload isolation (multitenancy) with Kubernetes</td>
<td>Still developing content</td>
<td>Multitenancy guidance</td>
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RA2 scope & Lakelse review

- **Upgrade** to Kubernetes 1.22
- **Add K8s service type** specs (Load Balancer, etc)
- **CNI multiplexers**
- **Alignment with Anuket RM – security** specs
- **Explicitly list Kubernetes APIs and Feature support**
- **Multitenancy**, workload isolation and Namespaces
<table>
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<tr>
<th>Topic</th>
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| Alignment with RM - security                                         | Priority: **To be included in this Release**  
Status: PRs [2673](#), [2662](#), [2525](#) merged                                      |
| Multitenancy, workload isolation and Namespaces                      | Priority: **To be included in this Release**  
Status: PR [2672](#) merged                                                               |
| Explicitly list Kubernetes APIs and Feature support                  | Priority: **To be included in this Release**  
incl. supported features APIs and objects & Sync SIG Features tables with ch4 specs & add policy (ga and beta, no alpha)  
Status: PR [2651](#) merged                                                               |
| Upgrade to Kubernetes 1.22                                           | Priority: **To be included in this Release**  
Status: PR [2587](#) Merged                                                                |
| Add K8s service type specs                                           | Priority: **To be included in this Release**  
For primary interfaces, ServiceTypes/NodePorts/LoadBalancers  
Status: PR [2628](#) merged                                                                |
| Implementation-agnostic CNI multiplexers (incl. API)                | Priority: **To be included in this Release**  
if an implementation-agnostic solution to have generic pod manifests that work with all possible multiplexers can be found, RA2 should mandate it, otherwise state alternative way out (ie operators to pick an implementation)  
Status: PR [2573](#) merged                                                                |
**RA2 Moselle**

- Infrastructure monitoring & telemetry
- More on Security
- Application LCM
- Any backlog:

<table>
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<tr>
<td>Enhance CaaS-on-VM specs</td>
<td><strong>hypervisor-layer specs to support caas clusters made with VM-based nodes</strong></td>
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<td>CNF packaging</td>
<td>Deployment level - helm etc.</td>
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<td>NFVO level - TOSCA / SOL1/SOL4 v4 / ONAP CSAR + ASD ?</td>
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<td>Alignment with RM - edge cloud</td>
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<td>Alignment with RM - SFC</td>
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Open discussion

• Approaches to multi tenancy
• Soft multitenancy – Namespaces
• Hard multitenancy – dedicated clusters
• Challenges? Best practices?
We aim to accelerate the adoption of telco cloud using open standards and architectures. We welcome contributors from any background. Feel free to join our meetings, mail us or check the repository.

Weekly meetings – Thursday @ 1500 UTC: https://wiki.anuket.io/display/HOME/Anuket+Meetings
Mailing list: https://lists.anuket.io/g/ra2
Wiki: https://wiki.anuket.io/x/_QgB
GitHub project: https://github.com/cntt-n/CNTT/projects/10