Lots and Lots of Little\textsuperscript{1} Things
Managing Scale and Hyperscale at the Edge\textsuperscript{2}

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MANAGE ALL THE THINGS!
Understanding Scale

What are the software & hardware challenges introduced with edge computing at scale?
IoT/Edge Device Growth Trajectory

Active connections in billions

- IoT
- Non-IoT
# Reality of Edge Scale

<table>
<thead>
<tr>
<th>Locations</th>
<th>Industrial IoT Devices per site</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,000</td>
<td>500</td>
</tr>
</tbody>
</table>

**Total Devices to Manage**

7.5 Million  
(15,000 x 500)

**Questions**

- How to deploy?  
- How to orchestrate?  
- How to manage OS?  
- How to manage at scale?
manage all the things?
Edge Definition/Framework

NEAR Edge
- 10s to 100s devices
- Closer to data center

FAR Edge
- 100s to 1000s devices
- On-site, Farthest from data center,
  Closer to users

Tiny Edge
- > 1000s devices
- End-point itself
  e.g., Industrial IoT
Healthcare
Common Themes

• IT expertise not available at location
• Small footprint and/or tight power & space budgets
• Non-stop operation
• Hostile environments
• Maximised automation – API driven approach
• Hardware config is the “last mile”
Projects

- MicroOS
- RANCHER
- UYUNI
- K3S
- FLEET
- LONGHORN
- KubeVirt
- tinkerbell
- NeuVector
More?

susecon.com
community.suse.com
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