Standardizing service platforms for 5G:
A view from the Web

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W3C is where the Web is shaped

- IoT / Web of Things
- Telecommunications
- Payments & e-commerce
- HTML5
- WebRTC
- CSS
- JavaScript APIs
- AR/VR
- Digital Publishing
- Progressive Web Apps
- Automotive
- Media & Entertainment
IT & Telcos Industry have converged
Yet not everyone has realized

<table>
<thead>
<tr>
<th>Web / IT</th>
<th>Telcos</th>
<th>Developers</th>
<th>End users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web / IT</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td>Telcos</td>
<td><img src="image4" alt="Image" /></td>
<td><img src="image5" alt="Image" /></td>
<td><img src="image6" alt="Image" /></td>
</tr>
<tr>
<td>Developers</td>
<td><img src="image7" alt="Image" /></td>
<td><img src="image8" alt="Image" /></td>
<td><img src="image9" alt="Image" /></td>
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<tr>
<td>End users</td>
<td><img src="image10" alt="Image" /></td>
<td><img src="image11" alt="Image" /></td>
<td><img src="image12" alt="Image" /></td>
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Conway’s Law (paraphrased)

“[Ecosystems] which design systems are constrained to produce designs which are copies of the communication structures of these [ecosystems].”
The 5G Promise

- Customized networks for Verticals
- Network slicing
- Cloud Native network
- Programmable Network
- Multi-Access Edge Computing
- Network as a Service
5G Needs Developers

- Customized networks for **Verticals**
- Network slicing
- IoT
- AR/VR
- Media
- Cloud Native network
- Network as a **Service**

**5G**

- Multi-Access Edge **Computing**
- Programmable Network
5G Seen by Developers

Result from a non-scientific survey
5G Needs the Web

Most Pull Requests 2017
GitHub

<table>
<thead>
<tr>
<th>Language</th>
<th>Pull Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Javascript</td>
<td>2,300,000</td>
</tr>
<tr>
<td>Python</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Java</td>
<td>986,000</td>
</tr>
<tr>
<td>Ruby</td>
<td>870,000</td>
</tr>
<tr>
<td>PHP</td>
<td>559,000</td>
</tr>
<tr>
<td>C++</td>
<td>413,000</td>
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<tr>
<td>CSS</td>
<td>335,000</td>
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<tr>
<td>C#</td>
<td>326,000</td>
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<tr>
<td>Go</td>
<td>285,000</td>
</tr>
<tr>
<td>C</td>
<td>239,000</td>
</tr>
<tr>
<td>Typescript</td>
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</tr>
<tr>
<td>Shell</td>
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</tr>
<tr>
<td>Swift</td>
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</tr>
<tr>
<td>Scala</td>
<td>99,000</td>
</tr>
<tr>
<td>Objective-C</td>
<td>66,000</td>
</tr>
</tbody>
</table>

Other languages and job roles with their respective pull requests:

- Desktop applications developer: 28.9%
- Mobile developer: 23.0%
- Database administrator: 14.4%
- Developer with a statistics or mathematics background: 11.3%
- Systems administrator: 11.3%
- DevOps specialist: 11.1%
- Embedded applications/devices developer: 9.3%
- Data scientist: 8.4%
- Other: 7.5%
- Graphics programming: 4.8%
- Graphic designer: 3.0%
- Machine learning specialist: 3.8%
- Quality assurance engineer: 3.5%

Github Year 2017 in review
Stack Overflow developer survey 2017
5G Architecture Challenge: Web Scale

• How can I deploy my edge app across operators?
• Can I build a 5G-enabled browser-based app?
• How many lawyers will need to review my app?
• How do I manage fallback when 5G capabilities aren’t available?
• How can I adapt my apps capabilities to my remaining 5G budget?
• How much visibility do I get on failures and error conditions?
• How should the AI in my app relate to the AI in the network?
• What security, privacy and performance guarantees do I get when my app operates at the edge?
We need to talk

W3C Web5G Workshop
May 10-11 2018
in London
w3.org/web5g – dom@w3.org