PERFECTO: Performance and Fault Management in Cellular Networks
1st Workshop held with Infocom, 2017

Co-Organizers

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mostafa Ammar</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Saurabh Bagchi</td>
<td>Purdue University</td>
</tr>
<tr>
<td>Kaustubh Joshi</td>
<td>AT&amp;T Labs</td>
</tr>
<tr>
<td>Rajesh Panta</td>
<td>AT&amp;T Labs</td>
</tr>
</tbody>
</table>

Problem Context

- Cellular networks have become a critical infrastructure
- Dependability challenges in cellular networks due to
  - Exploding data volumes
  - Heterogeneous protocols
  - Movement toward software-based services
- Challenges
  - How to maintain high levels of dependability?
  - How to achieve this while meeting performance requirements?
- Focus of a project funded by the US National Science Foundation through the Networking Technologies and Systems (NeTS) program, 2015-19
Goals

• Discuss performance and fault management in cellular networks
• Thrusts for the discussion
  – Current state-of-art
  – Current state-of-practice
  – Solutions being developed
  – Problem landscape for the future
• Presentation slide deck to be made available from the workshop home page

Solution Approach Explored by NSF NeTS Project

1. Predictive analytics based on real-time cellular data to determine any impending failure
2. Mitigation action to avoid impending failure
3. Offloading some computation for 1 and 2 above from the client device to the edge of the cellular network