

Software Workbench for Interactive, Time Critical and Highly self-adaptive cloud applications (SWITCH)

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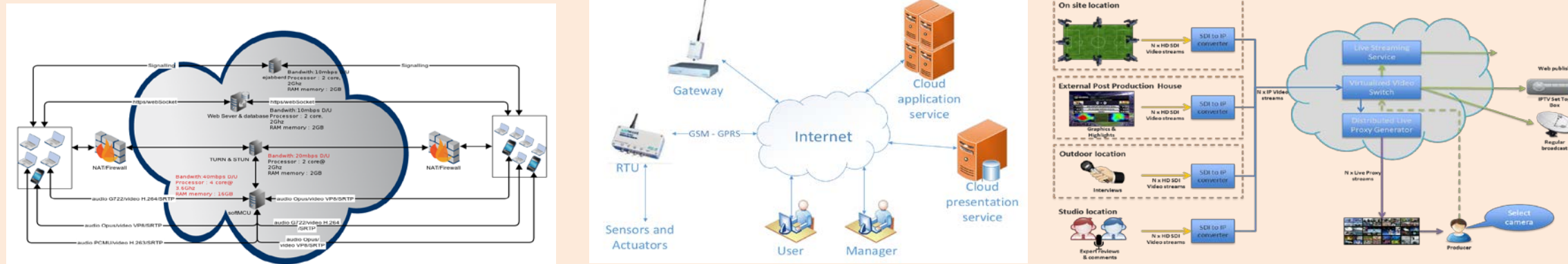
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Time Critical Applications

Time Critical Applications:

- 1) Have **huge** business potential or social impacts,
- 2) Have **very critical** time requirements, and
- 3) Are **very difficult** to implement and operate.

such as *real time business collaboration, disaster early warning, live event broadcasting control*:



Business providers are dreaming of toolkits for

- 1) **Efficiently implementing** customer requirements,
- 2) **Flexibly deploying** software products on Clouds,
- 3) **autonomously maintaining** the runtime system quality.

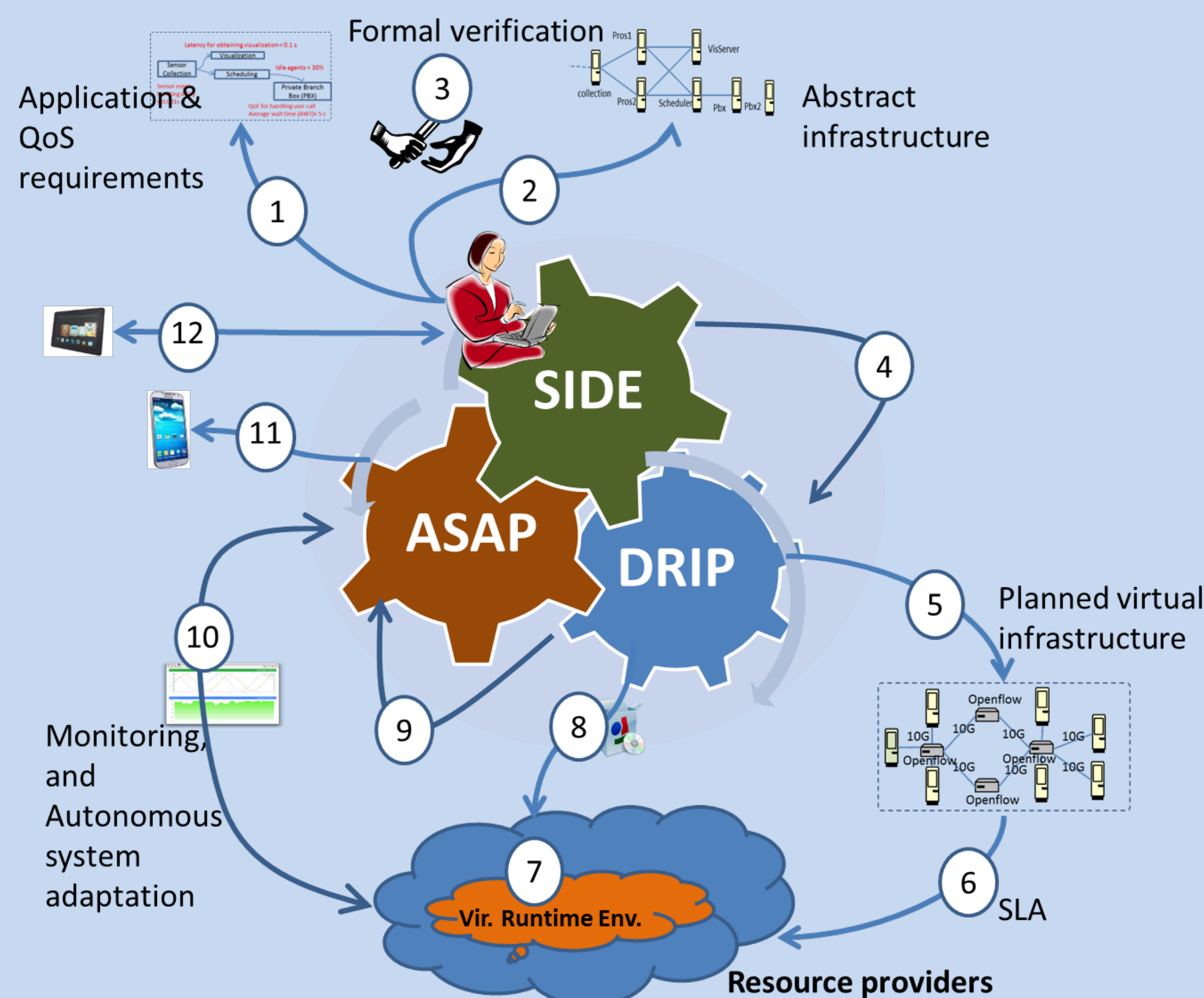
The SWITCH approach for time critical cloud applications

SWITCH Integrated Development Environment (SIDE) provides programming interface for

1. Programming both the application logic and virtual runtime environment
2. Viewing the runtime status and controlling the system behaviour
3. Formally reasoning the critical constraints of QoS/QoE

Autonomous System Adaption Platform (ASAP) provides components for

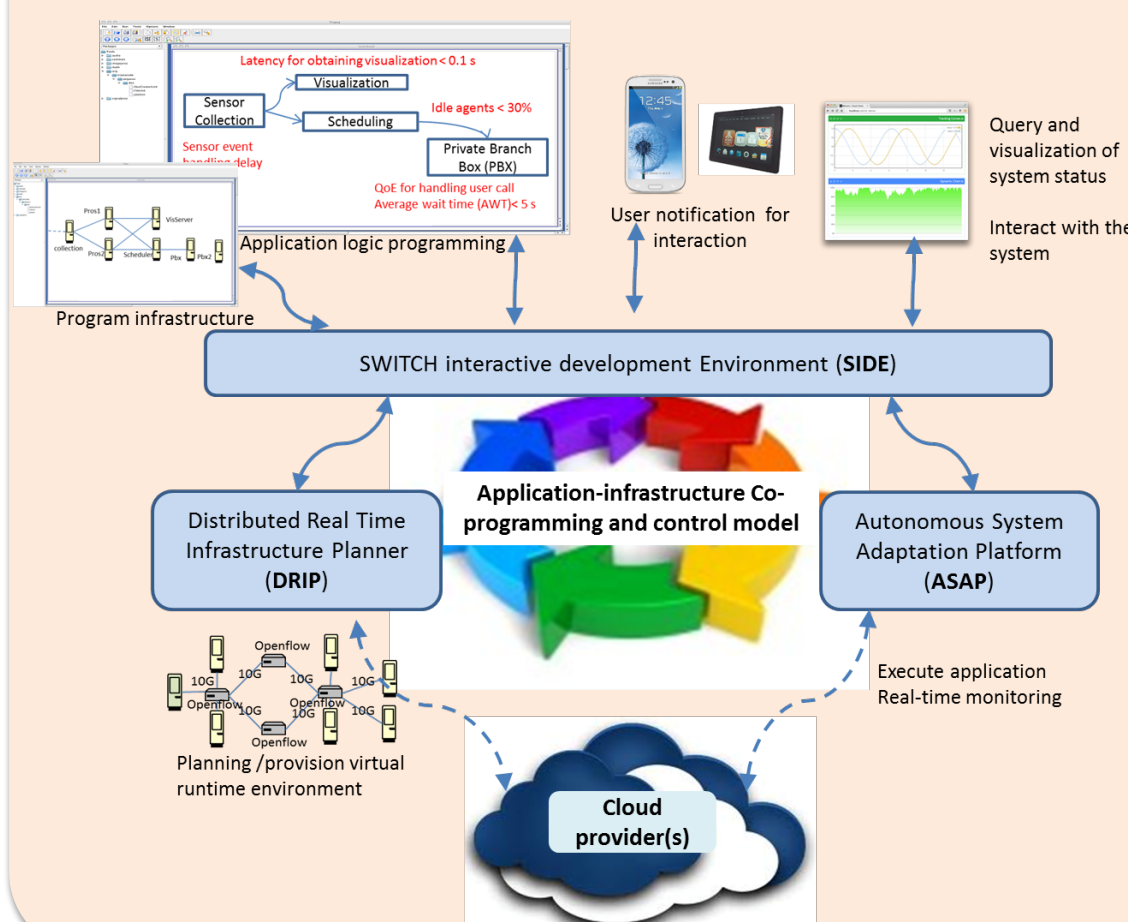
10. Monitoring, querying and visualizing: the application performance
11. Diagnosing the runtime status of the application,
12. Autonomously maintaining the system performance



DRIP: Dynamic Real-Time Infrastructure Planner

- provides components for
4. Selecting resources from Cloud providers based on the data flow and quality constraints
 5. Defining customised virtualized runtime environments,
 6. Service Level Agreements (SLAs) with the resource provider(s),
 7. Provisioning the virtual environment
 8. Deploying necessary services for the application,
 9. Scheduling and executing the application.

Architecture, use case and business impacts



The need for technology for Time Critical Cloud Applications is growing rapidly, which can be clearly seen from related to the pilot use cases.

1. **Collaborative real-time business communication platform (WT)**
2. **The elastic disaster early warning system (BEIA)**
3. **Cloud studio for directing and broadcasting live events (MOG)**

The SWITCH project will make impact on

- Improving development productivity of time critical Cloud applications
- Upgrading industrial technologies of time critical applications to use Cloud infrastructure
- Improving deployment efficiency of time critical applications
- Reducing operational cost of time critical services
- Promoting business competitiveness of Clouds



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