CS7NS1/CS4400 SCALABLE COMPUTING

Internet Of Things

Flip Classroom

Understand the principles and concepts

You will take your own personal notes

Supplement what you learned from your own paper summaries

Scalable Computing : Internet of Things

What is it …	What does it encompass …
Properties: ✓ Scalable : how big is big ✓ Adaptive : how easily reconfigurable and repurposed ✓ Dispersed : tasks, resources, nodes, processes ✓ Accessible : Human, machine ✓ Affordable : Devices, comms, energy, deployment ✓ Reliable : Lifetime, MTBF, consequences **Domains:** ✓ Internet of Things ✓ Processing Units: CPUs, GPUs ✓ Functional Groupings: Cluster, Grid, Cloud ✓ Nano architectures ✓ Quantum architectures	**Core:** ➢ Processing : computational, data, … ➢ Communications : carriers, systems, protocols ➢ Proximity : location, distance ➢ Trust : security, P2P **Concepts:** ➢ Horizontal/Vertical Scaling ➢ Self organization ➢ Adaptation ➢ Tuning

Scalable Computing : IoT

Discuss	Properties
✓ Internet of Things Scale: Billions of devices ✓ Core considerations: ✓ Intermittently connected : Not always online or actively powered up. Waking up devices? Considerations for communications – Duty cycle ✓ Constrained processing, memory and device resources ✓ Energy – availability, usage and system design ✓ Trust/Security ✓ Size/shape/design ✓ Deployment	➢ Scalable ➢ Adaptive ➢ Dispersed ➢ Reliable

Scalable Computing : IoT

Use cases	In Practice …
➢ Vehicular ➢ Systems ➢ Passengers ➢ Interconnectivity ➢ DSRC ➢ WiFi ➢ 3/4/5G ➢ Processing ➢ Energy ➢ Security/Trust ➢ Deployment	

Scalable Computing

Second assignment …	Second submission …
✓ Required. Due 5pm Sunday 23th September. ✓ https://www.computer.org/web/publications/transactions/ ✓ Each student to take and study **two(2) tutorial papers** from the **transactions and journals only** on this list. Each paper you choose must focus on a different technology, solution or purpose. Use different journals for each paper. Focus **ONLY** on CPU, GPU and processor systems scalability aspects. Only choose papers relevant to your stream and specific interests ✓ For each of those papers, specifically ➢ identify the five key contributions/findings/conclusions of the paper; ➢ identify the five key technology insights provided by the paper; ➢ identify the five key insights of relevance to CPU, GPU and processor scalability that you have gleaned from this paper.	➢ Blackboard: mymodule.tcd.ie ➢ AUTOMATIC plagiarism detection • Submit a pdf of a single sided A4 page including your name, student ID, course code (and stream as relevant) and your concise writings on each of i-iii above. • Your total submission should be no longer than one standard single sided A4 page, 11pt font so please be as concise and technically precise as possible in your writing.

Round up 

What have you learned …	What did you hope to learn …
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