UNIVERSITÀ DEGLI STUDI DI NAPOLI
FEDERICO II

itee PhD
information technology
electrical engineering

DIETI. UNINA

Giorgio Farina

Isolation in hardware virtualization

Tutor: Marcello Cinque

Cycle: XXXVII

Year: First

itee PhD
information technology
electrical engineering

My background

- MSc degree in Computer Engineering (October 2021)
- Research group: DESSERT
- PhD start date: 01/11/2021
- Scholarship type: CINI

Research field of interest

Cloud is a computing paradigm which aims to provide reliable, customized and QoS guaranteed dynamic computing environments for end-users

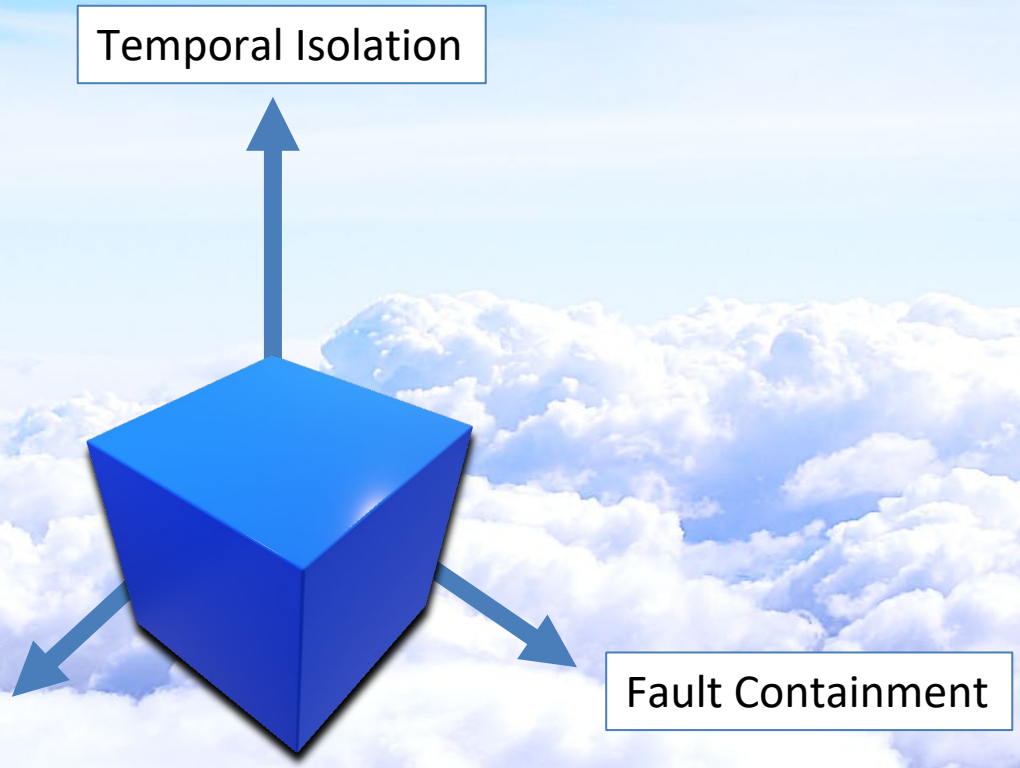
Hardware virtualization has become the most widely used form of virtualization in building modern cloud infrastructures

Hardware virtualization is the allocation in time and space of the hardware resources (or emulated hardware resources)

Worldwide. 01/01/2004 - 01/11/2022. Web Search.

Research field of interest

- **RT Cloud**
- **Secure Cloud**
- **Reliable Cloud**



Summary of study activities

Ad hoc PhD courses:

- Virtualization technologies and their applications
- Statistical data analysis for science and engineering research

Courses borrowed from MSc curricula :

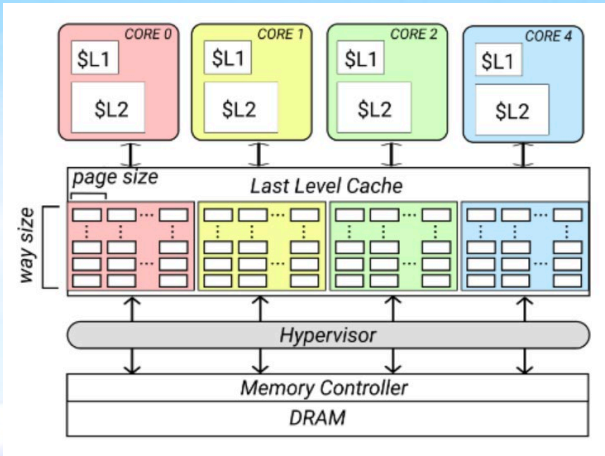
- Software Security
- Real-Time Industrial Systems

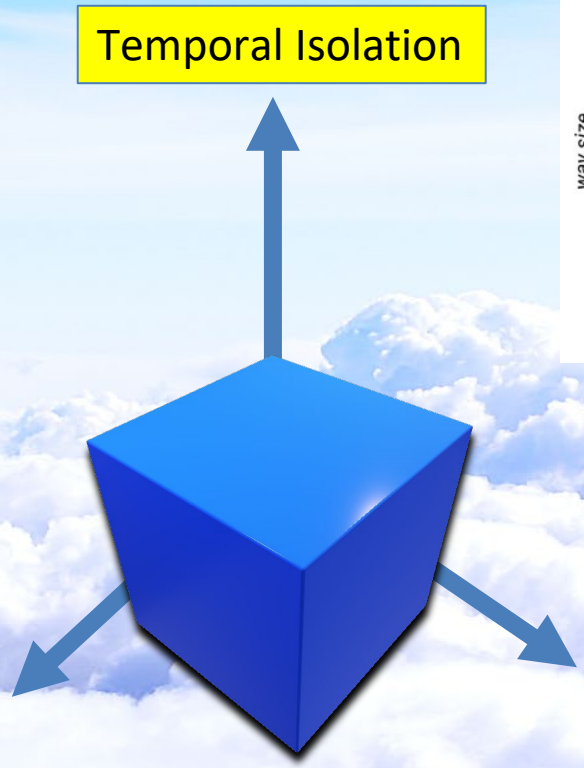
Conferences / events attended:

- IEEE 25th International Symposium On Real-Time Distributed Computing (ISORC 2022), Västerås, Sweden, 17/05/2022 to 18/05/2022, *presenting author*

Research activities

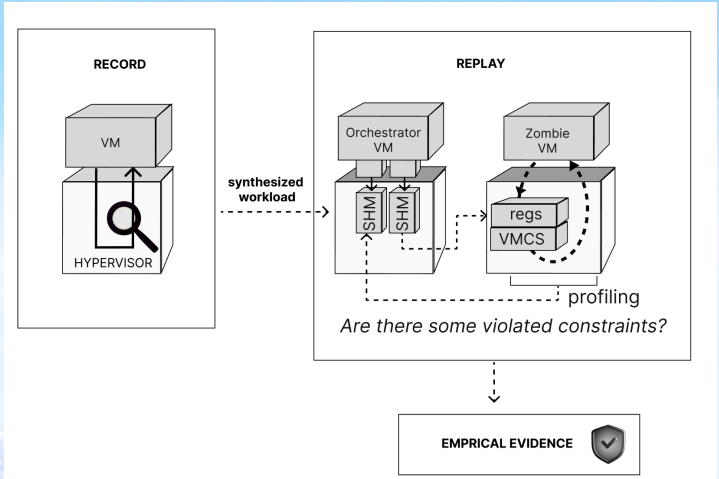
- **Problem**
- Memory Bandwidth Partitioning
- **Objectives**
- MBP via Hardware Virtualization Extensions
- **Expected Results**
- Flexibility, efficiency and predictability

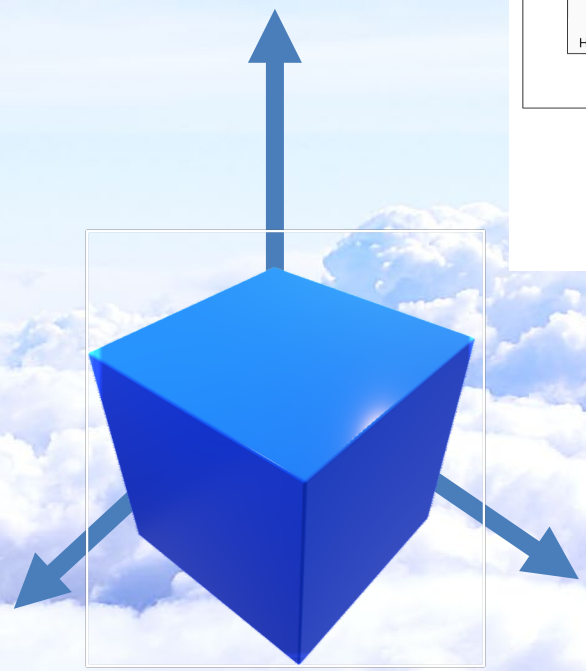




Research activities

- **Problem**
- Assessing Hardware-assisted virtualization solutions
- **Objectives**
- The enabling of Record & Replay
- **Expected Results**
- Efficiency and effectiveness in building empirical evidence





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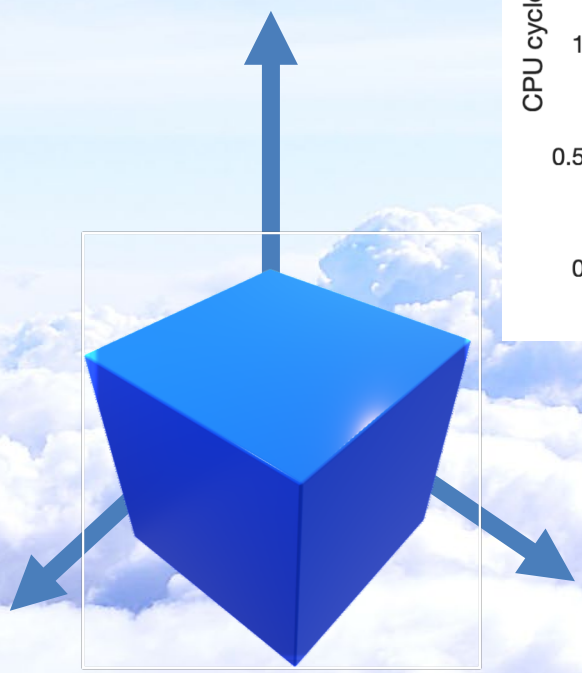

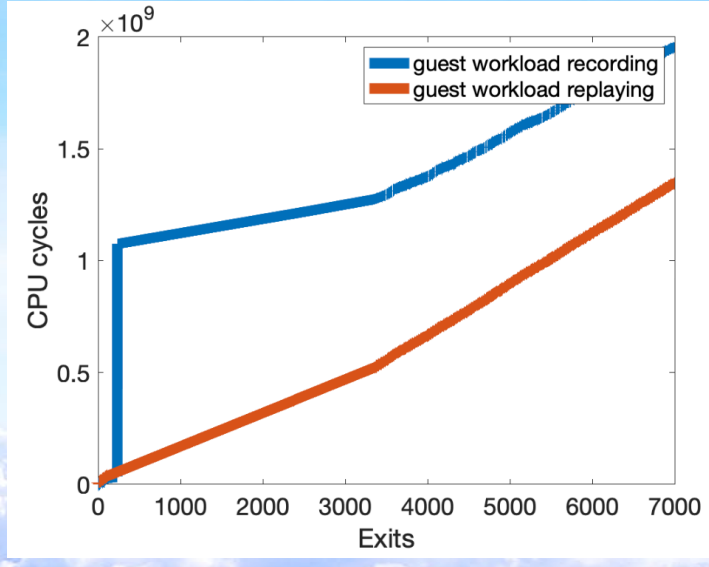

Products

[C1]	*"Assessing Intel's Memory Bandwidth Allocation for resource limitation in real-time systems,"* *G. Farina, G. Gala, M. Cinque and G. Fohler,* *IEEE 25th International Symposium On Real-Time Distributed Computing (ISORC 2022), Full Paper*
[C2]	*"RunPHI: Enabling Mixed-criticality Containers via Partitioning Hypervisors in Industry 4.0"* *M. Barletta, M. Cinque, L. De Simone, R. Della Corte, G. Farina, D. Ottaviano* *33rd IEEE International Symposium on Software Reliability Engineering (ISSRE 2022), Fast Abstracts*
[C3]	*"AID4TRAIN: Artificial Intelligence-Based Diagnostics for TRAins and INdustry 4.0.,"* *Cinque, M., Della Corte, R., Farina, G., Rosiello, S.* *EDCC 2022, Workshops.*
[C4]	*"An unsupervised approach to discover filtering rules from diagnostic logs,"* *Cinque, M., Della Corte, R., Farina, G., Rosiello, S.* *33rd IEEE International Symposium on Software Reliability Engineering (ISSRE 2022), Industry Track*