

# Selected Results of the COST Action IC1405: Lecture Notes in Computer Science



## Reversible Computation: Extending Horizons of Computing: Selected Results of the COST Action IC1405 (Lecture Notes in Computer Science Book 12070) by Anne Enright

★★★★☆ 4 out of 5

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Enhanced typesetting : Enabled  
Print length : 386 pages



Cloud computing has emerged as a transformative paradigm that has revolutionized the way businesses and organizations operate. However, the widespread adoption of cloud services has also brought forth new challenges related to dependability, quality, and security.

In response to these challenges, the COST Action IC1405 (Dependable Cloud Computing and Service Infrastructures) was established in 2015. The COST Action IC1405 brought together researchers, industry experts, and policymakers to collaborate on advancing the field of dependable cloud computing.

## Research Focus of COST Action IC1405

The COST Action IC1405 focused on the following key research areas:

- **Cloud Computing Challenges:** Identifying and addressing the challenges associated with cloud computing, including scalability, reliability, and security.
- **Cloud Service Quality:** Developing methodologies and tools for evaluating and assuring the quality of cloud services.
- **Cloud Service Classification:** Establishing a taxonomy for classifying cloud services based on their characteristics and capabilities.
- **Cloud Service Management:** Developing innovative approaches for managing cloud services efficiently and effectively.
- **Cloud Service Migration:** Investigating strategies and techniques for migrating applications and workloads to the cloud.
- **Cloud Service Orchestration:** Designing and implementing mechanisms for orchestrating cloud services to achieve optimal performance and reliability.
- **Cloud Service Provisioning:** Developing automated and efficient mechanisms for provisioning cloud services on demand.
- **Cloud Service Security:** Enhancing the security of cloud services through novel techniques and mechanisms.

## **Selected Results**

The COST Action IC1405 produced a wealth of research results, which were disseminated through scientific publications, workshops, and conferences. Some of the selected results include:

## **1. A Reference Architecture for Dependable Cloud Computing**

The researchers developed a comprehensive reference architecture for dependable cloud computing that provides a blueprint for designing and implementing reliable and secure cloud services. The architecture addresses key challenges such as fault tolerance, high availability, and disaster recovery.

## **2. A Framework for Cloud Service Quality Assessment**

The researchers proposed a framework for assessing the quality of cloud services. The framework uses a multi-dimensional approach that considers several quality attributes, including performance, reliability, security, and scalability. The framework helps cloud users make informed decisions about cloud service selection.

## **3. A Taxonomy of Cloud Services**

The researchers established a comprehensive taxonomy of cloud services that classifies cloud services based on their characteristics and capabilities. The taxonomy helps users understand the different types of cloud services available and their potential applications.

## **4. Best Practices for Cloud Service Management**

The researchers identified and documented best practices for managing cloud services effectively. The best practices cover areas such as service level agreement management, performance monitoring, and capacity planning. The best practices help organizations optimize their cloud service management operations.

## **5. A Methodology for Cloud Service Migration**

The researchers developed a methodology for migrating applications and workloads to the cloud. The methodology provides a step-by-step guide for planning, executing, and evaluating cloud migrations. The methodology helps organizations minimize the risks and costs associated with cloud migrations.

## **6. A Platform for Cloud Service Orchestration**

The researchers designed and implemented a platform for orchestrating cloud services. The platform automates the deployment, scaling, and management of cloud services. The platform helps organizations achieve optimal performance, reliability, and cost-effectiveness in their cloud operations.

## **7. A Framework for Cloud Service Provisioning**

The researchers developed a framework for provisioning cloud services on demand. The framework uses a model-driven approach that enables the automated creation and configuration of cloud services. The framework helps organizations reduce the time and effort required to provision cloud services.

## **8. A Risk Assessment Framework for Cloud Service Security**

The researchers developed a risk assessment framework for cloud service security. The framework helps organizations identify, assess, and mitigate the security risks associated with cloud services. The framework provides organizations with a comprehensive approach to securing their cloud environments.

The COST Action IC1405 made significant contributions to the field of dependable cloud computing. The research results provide valuable

insights and practical solutions for addressing the challenges associated with cloud computing. The COST Action IC1405 has helped to advance the state-of-the-art in dependable cloud computing and has laid the groundwork for future research and development in this important area.



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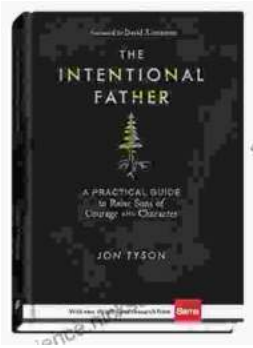
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