



Universiteit Gent  
Faculteit Ingenieurswetenschappen  
Vakgroep Informatietechnologie

## Architecturen en algoritmen voor netwerk- en dienstbewust Grid-resourcebeheer

Architectures and Algorithms for Network and Service Aware  
Grid Resource Management

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Bruno Volckaert



Proefschrift tot het bekomen van de graad van  
Doctor in de Ingenieurswetenschappen:  
Computerwetenschappen  
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Academiejaar 2005-2006



# Dankwoord

dankwoord...

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*Bruno Volckaert*



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# List of Acronyms

## **A**

ACE	Adaptive Communication Environment
ASAP	As Soon As Possible

## **C**

CDR	Common Data Representation
CM	Connection Manager
CORBA	Common Object Request Broker Architecture
CR	Computational Resource

## **D**

DIT	Directory Information Tree
DN	Distinguished Name
DR	Data Resource

## **E**

EGEE	Enabling Grids for E-Science in Europe
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## **F**

FCFS	First Come First Served
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**G**

GA	Genetic Algorithm
GGF	Global Grid Forum
GIIS	Grid Information Index Server
GMA	Grid Monitoring Architecture
GRIS	Grid Resource Information Service
GS	Grid Scheduler
GUI	Graphical User Interface

**H**

HTTP	HyperText Transfer Protocol
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**I**

IAT	Inter Arrival Time
ILP	Integer Linear Program
IP	Internet Protocol
IS	Information Service
ISP	Internet Service Provider

**J**

JAMM	Java Agents for Monitoring and Management
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**L**

LAN	Local Area Network
LCG	LHC Computing Grid
LDAP	Lightweight Directory Access Protocol
LHC	Large Hadron Collider

**M**

MAN	Medium Area Network
MDS	Globus Monitoring and Discovery Service
MPLS	MultiProtocol Label Switching

**N**

NWS	Network Weather Service
-----	-------------------------

**O**

OGSA	Open Grid Services Architecture
OGSI	Open Grid Services Infrastructure

**Q**

QoS	Quality of Service
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**R**

R-GMA	Relational Grid Monitoring Architecture
RM	Replica Manager
RTT	Round Trip Time

**S**

SM	Service Manager
SMON	Service Monitor
SOAP	Simple Object Access Protocol
SQL	Standard Query Language

SR Storage Resource

## **T**

TCP Transport Control Protocol  
TIO Tivoli Intelligent Orchestrator  
TPM Tivoli Provisioning Manager

## **U**

UDP User Datagram Protocol

## **V**

VO Virtual Organisation  
VPG Virtual Private Grid  
VPN Virtual Private Network

## **W**

WAN Wide Area Network  
WS-IS Web Service Information Service  
WSDL Web Service Description Language  
WSRF Web Service Resource Framework

## **X**

XML eXtensible Markup Language







# Nederlandse samenvatting –Summary in Dutch–

nederlandse samenvatting

## **Referenties**

## English summary

insert english summary here...

## **References**

# 1

## Introduction

### **1.1 Introduction**

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# 2

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insert text here...

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## Grid Simulation

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# 4

## Grid Service Management

### **4.1 Introduction**

insert text here

## References

# 5

## Media Grids

### **5.1 Introduction**

insert text...

## References



# 6

## Overall Conclusion

insert conclusion here





# Grid Computing: The Next Network Challenge!

**B. Volckaert, P. Thysebaert, M. De Leenheer, F. De Turck, B. Dhoedt, P. Demeester**

published in *The Journal of The Communications Network (Proceedings of FITCE 2004)*, 43rd European Telecommunications Congress, 2004, Vol. 3, pp. 159-165.

*Abstract abstract*

## **A.1 Introduction**

Start text here...

## **References**



# B

## Application-specific hints in reconfigurable Grid scheduling algorithms

**B. Volckaert, P. Thysebaert, F. De Turck, B. Dhoedt, P. Demeester**

published in **Lecture Notes in Computer Science (LNCS 3038)**, Computational Science, Proceedings P3 of ICCS 2004, Springer-Verlag Berlin Heidelberg 2004, Krakow, 2004, Vol. LNCS 3038, pp. 149-157.

**Abstract** *abstract...*

### **B.1 Introduction**

insert text here

### **References**



# C

## Network Aware Scheduling in Grids

**B. Volckaert, P. Thysebaert, M. De Leenheer, F. De Turck, B. Dhoedt, P. Demeester**

published in **Proceedings of NOC2004, 9th European Conference on Networks & Optical Communications, TU Eindhoven, 2004, pp. 311-318.**

*Abstract abstract*

### **C.1 Introduction**

insert text here...

### **References**

