

**2011 IEEE/IPSJ 11th
International Symposium on
Applications and the Internet**

(SAINT 2011)

**Munich, Germany
18-21 July 2011**



**IEEE Catalog Number: CFP11214-PRT
ISBN: 978-1-4577-0531-1**

2011 IEEE/IPSJ International Symposium on Applications and the Internet

SAINT 2011

Table of Contents

Message from the General Chairs	xvii
Message from the Program Chairs	xviii
Message from the Doctoral Symposium Co-chairs	xix
Message from the Workshop Co-chairs	xx
Organizing Committee	xxi
Program Committee	xxiv
Reviewers	xxvii
Joint COMPSAC/SAINT Keynotes	xxx
Joint COMPSAC/SAINT Panel	xxxi
HSNCE 2011 Message	xxxii
SISS 2011 Message	xxxiii
MidArch 2011 Message	xxxiv
NETSAP 2011 Message	xxxv
IC-Web 2011 Message	xxxvi
EUCASS 2011 Message	xxxviii
C3NET 2011 Message	xxxix
FIE 2011 Message	xl
HEUNET 2011 Message	xlii
ITeS 2011 Message	xliv

Papers #1: Security

Searching Structural Neighborhood of Malicious URLs to Improve Blacklisting	1
<i>Mitsuaki Akiyama, Takeshi Yagi, and Mitsutaka Itoh</i>	

High-Performance Intrusion Detection Using OptiGrid Clustering and Grid-Based Labelling	11
<i>Moriteru Ishida, Hiroki Takakura, and Yasuo Okabe</i>	

Design and Implementation of a Certified Document Delivery System without a Trusted Intermediate Authority	20
<i>Satoshi Ishibashi, Shuichi Miyazaki, and Yasuo Okabe</i>	

Papers #2: Networking

An XPath Query Aggregation Algorithm Using a Region Encoding	27
<i>Yang Cao, Chung-Horng Lung, and Shikharesh Majumdar</i>	
Fluid-Based Analysis of TCP Flows in a Scale-Free Network	37
<i>Yusuke Sakumoto, Hiroyuki Ohsaki, and Makoto Imase</i>	

Papers #3: Sensor Networks

Mutually Complementary Communication Protocol for Indoor Sensor/Actuator Networks	44
<i>Hisashi Sawada, Hiroshi Kuriyama, Yuki Nakano, Hiroshi Mineno, and Tadanori Mizuno</i>	

A Novel Approach for Selecting the Participants to Collect Data in Participatory Sensing	50
<i>Hong Nhat Pham, Back Sun Sim, and Hee Yong Youn</i>	

Evaluation of the Influence of Time Synchronisation on Classification Learning Based Movement Detection with Accelerometers	56
<i>Bernd Niklas Klein, Sian Lun Lau, and Klaus David</i>	

Papers #4: Application

A Topic-Based Visualization Tool for Distributed Publish/Subscribe Messaging	65
<i>Kyriakos Karenos, Wim De Pauw, and Hui Lei</i>	

Reducing Speech Contention in Web Conferences	75
<i>Hidekazu Tamaki, Suguru Higashino, Minoru Kobayashi, and Masayuki Ihara</i>	

A Unified Method for Multiple Home Appliances Control through Static Finger Gestures	82
<i>Lei Jing, Kaoru Yamagishi, Junbo Wang, Yinghui Zhou, Tongjun Huang, and Zixue Cheng</i>	

Papers #5: Social Networks

A Federated Approach to Crossblogging through Contracts	91
<i>Felipe M. Villoria and Oscar Díaz</i>	
Social Engineering of Communities of Web Services	100
<i>Zakaria Maamar, Hamdi Yahyaoui, Erbin Lim, and Philippe Thiran</i>	
A Proposal for Social Search System Design	110
<i>Toyokazu Akiyama, Yukiko Kawai, Yuya Matsui, Yoshinori Kubota, and Takuya Osaki</i>	

Papers #6: Mobile Networking

Data Clustering on a Network of Mobile Smartphones	118
<i>Adam Ji Dou, Vana Kalogeraki, Dimitrios Gunopulos, Taneli Mielikinen, Ville Tuulos, Sean Foley, and Curtis Yu</i>	
A Flooding Control Method with Ack-carry for Location-Based Information Dissemination in Mobile Ad Hoc Networks	128
<i>Toshimitsu Fujii, Mitsuru Kaji, Yuya Sasaki, Takahiro Hara, and Shojiro Nishio</i>	
An Effective Batching Scheme Combining Static Multicasting with Dynamic Multicasting for Mobile IPTV	136
<i>Han Ku Yoo, Kwang Myung Kim, and Hee Yong Youn</i>	

Papers #7: Cloud

ACES - Application Cloud for Embedded Systems	145
<i>Jian-Hong Liu, Jing Chen, Yi-Chuan Tai, and Chen-Hao Shih</i>	
The Design and Implementation of an On-demand DC Grid in Home	152
<i>Tomoki Shibata, Kazumi Sakai, and Yasuo Okabe</i>	
DaaS: DDoS Mitigation-as-a-Service	160
<i>Soon Hin Khor and Akihiro Nakao</i>	

Short Papers #1

Evaluation of Time-Sensitive Information Multicasting Using Tree-Structured Overlay Network	172
<i>Atsushi Tagami, Makoto Takahara, Shigehiro Ano, and Kenji Suzuki</i>	
Pantau: A Monitoring System for KVM-Based Server Consolidation Environment	178
<i>Arnupharp Viratanapanu, Ahmad Kamil Abdul Hamid, Yoshihiro Kawahara, and Tohru Asami</i>	

Evaluating Asynchronous Sharing of Links and Annotation Sessions as Social Interactions on Internet Videos	184
<i>Alan Keller Gomes, Diogo de Carvalho Pedrosa, and Maria da Graça Campos Pimentel</i>	
Information Source-Based Classification of Automatic Phishing Website Detectors	190
<i>Hossain Shahriar and Mohammad Zulkernine</i>	

Short Papers #2

A Situation-Based Exception Detection Mechanism for Safety in Pervasive Systems	196
<i>Eun-Sun Cho and Sumi Helal</i>	
User Centric Privacy in Mobile Communication Scenarios	202
<i>Klaus Rechert, Sven Wohlgemuth, Isao Echizen, and Noboru Sonehara</i>	
Design and Implementation of an AR-Assisted Tool for Basic Home Network Management	208
<i>Ahmad Kamil Abdul Hamid, Wei Zhu, Yoshihiro Kawahara, and Asami Tohru</i>	

Joint COMPSAC/SAINT Doctoral Symposium - SAINT Topics Papers (Poster Presentation)

Effects of Length and Number of Paths on Simultaneous Multi-path Communication	214
<i>Akiji Tanaka</i>	
A Framework for Context-Aware Applications for Smart Spaces	218
<i>Natalia Díaz Rodríguez</i>	
Proposal of an Adaptive Firewall System in Collaboration with Extended DNS	222
<i>Yong Jin and Nariyoshi Yamai</i>	
An Analysis on Premium Value of Moral Right of Author in Japanese Copyright Law: Based on Intellectual Property High Court Judge from 2005 to 2010	226
<i>Naonori Kato Sokendai</i>	
Usability and Security in EU E-Banking Systems - Towards an Integrated Evaluation Framework	230
<i>Caroline Möckel</i>	
Platform for Pushing the Device-Oriented Information into a Cloud	234
<i>Kenji Morita</i>	
Simple Wi-Fi-Based Direction Estimation of Subjects Using Directional Antenna	238
<i>Shota Ishikawa</i>	

Reconfigurable TCP: An Architecture for Enhanced Communication Performance in Mobile Cloud Services	242
<i>Naoki Oguchi and Shunji Abe</i>	
Toward Better Recommender System by Collaborative Computation with Privacy Preserved	246
<i>Chia-Lung Hsieh</i>	

Workshop #1 - The Second Workshop on High Speed Network and Computing Environments (HSNCE 2011)

HSNCE 2011 Session 1

An Open Platform toward Large-Scale Multilevel Modeling and Simulation of Physiological Systems	250
<i>Yoshiyuki Asai, Hideki Oka, Takeshi Abe, Masao Okita, Ken-ichi Hagihara, Taishin Nomura, and Hiroaki Kitano</i>	
Peta-Flow Computing: Vision and Challenges	256
<i>Hiroyuki Ohsaki, Kazunori Nozaki, Ken'ichi Baba, Eisaku Sakane, Naohisa Sakamoto, Kohji Koyamada, and Shinji Shimojo</i>	
Performance Evaluation of Epidemic Broadcast with Directional Antennas in Vehicular Ad-Hoc Networks	260
<i>Shinpei Kuribayashi, Yusuke Sakamoto, Hiroyuki Ohsaki, Satoshi Hasegawa, and Makoto Imase</i>	

HSNCE 2011 Session 2

Modeling Bio-Molecular Machinery in the Complex Environment Inside the Cell	266
<i>Yuichi Togashi</i>	
Estimating Traffic Anomalies for Throughput Prediction on Network Virtualization	267
<i>Chunghan Lee, Hirotake Abe, Toshio Hirotsu, and Kyoji Umemura</i>	
Performance Comparison of Enhanced TCPs over High-Speed Internetworking Satellite (WINDS)	274
<i>Hiroshi Yamamoto, Genki Komada, Katsuichi Nakamura, Takashi Takahashi, and Katsuyuki Yamazaki</i>	

Workshop #2 - The Second International Workshop on "Semantic Interoperability for Smart Spaces" (SISS 2011)

SISS 2011 Session 1: Enabling Technologies for Smart Spaces

Programming Pervasive Spaces: Workshop on Semantic Interoperability in Smart Spaces	279
<i>Sumi Helal</i>	
Delay Performance in a Semantic Interoperability Architecture	280
<i>Sachin Bhardwaj, Tanir Özçelebi, Richard Verhoeven, and Johan Lukkien</i>	
Developing Reusable Knowledge Processors for Smart Environments	286
<i>Jarkko Kuusijärvi and Sakari Stenudd</i>	

SISS 2011 Session 2: Smart Space Solutions & Applications

Feasibility Evaluation of M3 Smart Space Broker Implementations	292
<i>Matti Eteläperä, Jussi Kiljander, and Kari Keinänen</i>	
Security Solutions for Smart Spaces	297
<i>Jani Suomalainen and Pasi Hyttinen</i>	
Enabling End-Users to Configure Smart Environments	303
<i>Jussi Kiljander, Janne Takalo-Mattila, Matti Eteläperä, Juha-Pekka Soininen, and Kari Keinänen</i>	
Case Study: Context-Aware Supervision of a Smart Maintenance Process	309
<i>Susanna Pantsar-Syväniemi, Eila Ovaska, Susanna Ferrari, Tullio Salmon Cinotti, Guido Zamagni, Luca Roffia, Sandra Mattarozzi, and Valerio Nannini</i>	

Workshop #3 - The Fifth Workshop on Middleware Architecture in the Internet (MidArch 2011)

MidArch 2011 Session 2

Quantifying Cost Structure of Campus PKI	315
<i>Shigeaki Tanimoto, Masahiko Yokoi, Hiroyuki Sato, and Atsushi Kanai</i>	
Design and Implementation of Web Forward Proxy with Shibboleth Authentication	321
<i>Takaaki Komura, Hiroaki Sano, Noritoshi Demizu, and Ken Makimura</i>	
Federated Authentication in a Hierarchy of IdPs by Using Shibboleth	327
<i>Hiroyuki Sato and Takeshi Nishimura</i>	

MidArch 2011 Session 3

Performance Analysis of Movement-Based Group Location Management for Mobile Stations Riding on Transportation Systems in Cellular Systems	333
<i>Yun Won Chung</i>	
A Handover Control of Mobile Nodes with IP Mobility in Heterogeneous Wireless Networks	338
<i>Takuya Horai, Yuki Iwata, Hayato Morihira, Yasuhiro Ohishi, Kaori Maeda, and Hiroyuki Inoue</i>	
Optimization System of IP Address Using Terminal ID in Eduroam	342
<i>Yoshinori Miyamoto, Yasuhiro Yamasaki, Hideaki Goto, and Hideaki Sone</i>	
Flexible Access Management System for Campus VLAN Based on OpenFlow	347
<i>Yasuhiro Yamasaki, Yoshinori Miyamoto, Junichi Yamato, Hideaki Goto, and Hideaki Sone</i>	

Workshop #4 - The Second Workshop on Network Technologies for Security, Administration and Protection (NETSAP 2011)

NETSAP 2011 Session 1: Keynote

New Era for Management to Deal with Scalability, Invisibility and Shared Responsibility	352
<i>Suguru Yamaguchi</i>	

NETSAP 2011 Session 2: Detection of Malicious Activities

Detection of Attackers in Services Using Anomalous Host Behavior Based on Traffic Flow Statistics	353
<i>Yukiko Sawaya, Ayumu Kubota, and Yutaka Miyake</i>	
A Study of Communication Route Selection Considering Route Security	360
<i>Fumiharu Etoh, Yoshiaki Hori, and Kouichi Sakurai</i>	
Improving Performance of Anomaly-Based IDS by Combining Multiple Classifiers	366
<i>Kazuya Kishimoto, Hirofumi Yamaki, and Hiroki Takakura</i>	
Correlation Analysis between Spamming Botnets and Malware Infected Hosts	372
<i>Jungsuk Song, Jumpei Shimamura, Masashi Eto, Daisuke Inoue, and Koji Nakao</i>	

Workshop #5 - The First International Workshop on the Information-Centric Web (IC-Web 2011)

IC-Web 2011 Session 1

Breadcrumbs+: Some Extensions of Naive Breadcrumbs for In-network Guidance in Content Centric Networks	376
<i>Masayuki Kakida, Yosuke Tanigawa, and Hideki Tode</i>	
SAPS: Semantic AtomPub-Based Services	382
<i>Markus Lanthaler and Christian Gütl</i>	
Efficient Information Source Monitoring Method Considering User Utility in Large-Scale Networks	388
<i>Shinji Sugawara, Kengo Honda, and Yutaka Ishibashi</i>	

Workshop #6 - The Second International Workshop on Enablers for Ubiquitous and Context-Aware Services on Sensor Networks (EUCASS 2011)

EUCASS 2011 Session 1: Service Platform Using Ubiquitous Sensors and Devices

S ³ : Smart Shadow System for Real World Service and Its Evaluation with Users	394
<i>Kenji Umakoshi, Takashi Kambayashi, Manabu Yoshida, Michiharu Takemoto, and Masato Matsuo</i>	
A Home Security Service Robot System Using the Network Service Platform and Its Implementation	402
<i>Soichiro Ushio, Kazunori Okada, Yasuhiko Kido, Tomoki Kitahara, Hidenori Tsuji, Satoko Moriguchi, Masahiko Narita, and Yuka Kato</i>	
A Design and Evaluation of a Geolocation-Aware Reliable Multicast System on Wireless Networks	408
<i>Tohru Kondo, Toru Suzuki, Tsuyoshi Yoshigi, Hayato Morihiro, and Kaori Maeda</i>	
Design and Implementation of New uTupleSpace Enabling Storage and Retrieval of Large Amount of Schema-less Sensor Data	414
<i>Takayuki Nakamura, Keiichiro Kashiwagi, Yutaka Arakawa, and Motonori Nakamura</i>	

EUCASS 2011 Session 2: Management Technology for Ubiquitous Computing and Networking

Acquisition and Visualization of Hosts Connected to the Network	421
<i>Yasuhito Tsukahara, Takashi Tomine, and Kazunori Sugiura</i>	
A Broadcast Method Based on Estimation and Preservation of Stable Links in Delay Tolerant Networks	427
<i>Sawamura Yusuke, Yuuichi Teranishi, Kaname Harumoto, Susumu Takeuchi, and Shojiro Nishio</i>	
A Case Study of UTMesh: Design and Impact of Real World Experiments with Wi-Fi and Bluetooth Devices	433
<i>Hideya Ochiai, Kenji Matsuo, Satoshi Matsuura, and Hiroshi Esaki</i>	

Workshop #7 - The Second Workshop on Company, Campus and Community Networking - Technology, Management and Ethics - (C3NET 2011)

C3NET 2011 Session 2: Access Management

DNS Resource Record Analysis of URLs in E-Mail Messages for Improving Spam Filtering	439
<i>Shuji Suwa, Nariyoshi Yamai, Kiyohiko Okayama, and Motonori Nakamura</i>	
An Identification Method of PCs behind NAT Router with Proxy Authentication on HTTP Communication	445
<i>Yoshiki Ishikawa, Nariyoshi Yamai, Kiyohiko Okayama, and Motonori Nakamura</i>	
Trust-Based VoIP Spam Detection Based on Call Duration and Human Relationships	451
<i>Noppawat Chaisamran, Takeshi Okuda, Gregory Blanc, and Suguru Yamaguchi</i>	

C3NET 2011 Session 3: Web Services

A Proposal of Framework for Information Visualization in Developing of Web Application	457
<i>Kanae Matsui, Masato Yamanouchi, and Hideki Sunahara</i>	
Development of a Digital Signage System for Automatic Collection and Distribution of Its Content from the Existing Digital Contents and Its Field Trials	463
<i>Hiroyuki Inoue, Kaoru Suzuki, Koji Sakata, and Kaori Maeda</i>	
Evaluation of User-Satisfaction in Online Shopping Web Services with TCP Variables	469
<i>Yoshihiro Ito and Toru Tahara</i>	

Workshop #8 - Future Internet Engineering (FIE 2011)

FIE 2011 Session 1

A Behavioral Study of TCP Linux Variants over Satellite Networks	474
<i>Davide Adami, Christian Callegari, Stefano Giordano, Michele Pagano, and Teresa Pepe</i>	
The Simulation Evaluation for an Adaptive Network Routing by Using Latency Information	480
<i>Hiroki Kashiwazaki and Yoshiaki Takai</i>	

FIE 2011 Session 2

Design and Implementation of Inter-ISP Virtual Backbone Infrastructure to Meet Various QoS Requirements	486
<i>Takuya Omizo, Kenji Masui, and Katsuyoshi Iida</i>	
A Unified ME Algorithm for Arbitrary Open QNMs with Mixed Blocking Mechanisms	492
<i>Jumma S. Alanazi and Demetres D. Kouvatsos</i>	
Extension Management of a Knowledge Base Migration Process to IPv6	497
<i>Krzysztof Nowicki, Mariusz Stankiewicz, Aniela Mrugalska, Józef Woźniak, and Tomasz Mrugalski</i>	
Modelling TCP Connection in WiMAX Network Using Fluid Flow Approximation	502
<i>Krzysztof Grochla, Tadeusz Czachórski, and Jerzy Klamka</i>	

Workshop #10 - The Second Workshop on Heuristic Methods for the Design, Deployment, and Reliability of Networks and Network Applications (HEUNET 2011)

HEUNET 2011 Session 1: Application-Centric Approaches

A Method for Real-Time Identification of Malformed BGP Messages	508
<i>Masafumi Watari, Peng Jiang, Atsuo Tachibana, and Shigehiro Ano</i>	
Method of Locating Mirror Servers to Alleviate Load on Servers and Links	513
<i>Ryota Nakamura and Hiroyoshi Miwa</i>	
Routing Metric Based on Node Degree for Load-Balancing in Large-Scale Networks	519
<i>Hitomi Tamura, Masato Uchida, Masato Tsuru, Jun'ichi Shimada, Takeshi Ikenaga, and Yuji Oie</i>	

Autonomous Decentralized Mechanism of Structure Formation Adapting to Network Conditions	524
<i>Chisa Takano, Masaki Aida, Masayuki Murata, and Makoto Imase</i>	

HEUNET 2011 Session 2: Meta-Heuristic Approaches

Parallel Evolutionary P2P Networking for Realizing Adaptive Large-Scale Networks	532
<i>Kei Ohnishi and Yuji Oie</i>	
Annealing Heuristic for Fair Wireless Channel Allocation by Exponential Ordered-Ordered Weighted Averaging Operator Maximization	538
<i>Mario Köppen, Kaori Yoshida, Masato Tsuru, and Yuji Oie</i>	

Workshop #11 - The Fourth Workshop on IT-enabled Services (ITeS 2011)

Past, Present and the Future of IT-Enabled Services	544
<i>Shiro Uesugi</i>	

ITeS 2011 Session 1: Information Diffusion

A Comparative Study on the Diffusion of Smartphones in Korea and Japan	545
<i>Yousin Park and Masashi Ueda</i>	
Mathematical Analysis and Simulation of Information Diffusion on Networks	550
<i>Yuya Dan</i>	

ITeS 2011 Session 2: ITeS in Financial Services

A Study on Intention to Use Factor in the Internet Banking Websites in Thailand	556
<i>Nagul Cooharajanone, Sedtanun Chofa, and Suphakant Phimoltares</i>	
A Local Currency System Reflecting Variety of Values	562
<i>Hirotsugu Kinoshita, Yoshiaki Tajima, Naoya Kubo, Tetsuya Morizumi, and Kazuhiro Suzuki</i>	

ITeS 2011 Session 3: ITeS in Commerce

Using Choice Experiments to Value an Electronic Commerce	568
<i>Nobuyuki Soga and Takashi Okamoto</i>	
Trust on E-Commerce Website in Thailand: A Case of Online Hotel Reservation	574
<i>Kanokwan Atcharyachanvanich and Okada Hitoshi</i>	

A Trust Rating Method for Information Providers over the Social Web Service: A Pragmatic Protocol for Trust among Information Explorers and Information Providers	578
<i>Shigeichiro Yamasaki</i>	

ITeS 2011 Session 4: ITeS in Healthcare and Privacy Protection

Open Issues toward Successful Deployment of Electronic Health Information Exchange in Japan - Analysis of Regional Health Information Network in Kagawa Prefecture	583
<i>Daisuke Yamakata and Hiroki Nogawa</i>	
A Framework for an Authorization System with Spatial Reasoning Capacity to Improve Risk Management and Information Security in Healthcare	587
<i>Eizen Kimura, Shinji Kobayashi, Takeki Yoshikawa, and Ken Ishihara</i>	
Information Offering by Anonymous in Japanese Human Flesh Search: Analysis of Motivation in Social Media Platform	592
<i>Hidenobu Sai and Yohko Orito</i>	

Author Index