

2018 IEEE/ACM 26th International Symposium on Quality of Service (IWQoS 2018)

**Banff, Alberta, Canada
4-6 June 2018**



**IEEE Catalog Number: CFP18IWQ-POD
ISBN: 978-1-5386-2543-9**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18IWQ-POD
ISBN (Print-On-Demand):	978-1-5386-2543-9
ISBN (Online):	978-1-5386-2542-2
ISSN:	1548-615X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

A DATA CENTER INTERCONNECTS CALCULUS	1
<i>H. Wang, H. Shen, P. Wieder, R. Yahyapour</i>	
A HYBRID APPROACH TO SCALABLE NAME PREFIX LOOKUP	11
<i>K. Huang, Z. Wang</i>	
AN EFFICIENT ONLINE MARKET MECHANISM FOR RESOURCE LEASING IN CLOUD RADIO ACCESS NETWORKS	21
<i>R. Zhou, J. Cui</i>	
HOW WOULD YOU LIKE YOUR PACKETS DELIVERED? AN SDN-ENABLED OPEN PLATFORM FOR QOS ROUTING	31
<i>C. Gao, V. Rajabian-Schwartz, W. Zhang, G. Xue, J. Tang</i>	
BYTE SEGMENT NEURAL NETWORK FOR NETWORK TRAFFIC CLASSIFICATION	41
<i>R. Li, X. Xiao, S. Ni, H. Zheng, S. Xia</i>	
COLLABORATIVE INTERACTIVE WIRELESS CHARGING IN A CYCLIC MOBISPACE	51
<i>R. Zhang, S. Zhang, Z. Qian, M. Xiao, J. Wu, J. Ge, S. Lu</i>	
COMPETITIVE ONLINE SCHEDULING ALGORITHMS WITH APPLICATIONS IN DEADLINE-CONSTRAINED EV CHARGING	61
<i>B. Alinia, M. Talebi, M. Hajiesmaili, A. Yekkehkhany, N. Crespi</i>	
ENABLING EFFICIENT SOURCE AND PATH VERIFICATION VIA PROBABILISTIC PACKET MARKING	71
<i>B. Wu, K. Xu, Q. Li, Z. Liu, Y.-C. Hu, M. Reed, M. Shen, F. Yang</i>	
ENABLING PRIVACY-PRESERVING HEADER MATCHING FOR OUTSOURCED MIDDLEBOXES	81
<i>Y. Guo, C. Wang, X. Yuan, X. Jia</i>	
FLOW-LEVEL TRAFFIC ENGINEERING IN CONVENTIONAL NETWORKS WITH HOP-BY- HOP ROUTING	91
<i>N. Geng, Y. Yang, M. Xu</i>	
FOLLOW ME AT THE EDGE: MOBILITY-AWARE DYNAMIC SERVICE PLACEMENT FOR MOBILE EDGE COMPUTING	101
<i>Y. Ouyang, Z. Zhou, X. Chen</i>	
MAMPF: ENCRYPTED TRAFFIC CLASSIFICATION BASED ON MULTI-ATTRIBUTE MARKOV PROBABILITY FINGERPRINTS	111
<i>C. Liu, Z. Cao, G. Xiong, G. Gou, S.-M. Yiu, L. He</i>	
NETCP: CONSISTENT, NON-INTERRUPTIVE AND EFFICIENT CHECKPOINTING AND ROLLBACK OF SDN	121
<i>Y. Yu, C. Qian, W. Wu, Y. Zhang</i>	
ON MAXIMIZING QOE IN AVC-BASED HTTP ADAPTIVE STREAMING IN AN SDN APPROACH	131
<i>A. Erfanian, F. Tashtarian, M. Yaghmaee</i>	
ONLINE DEMAND RESPONSE OF GPU CLOUD COMPUTING WITH DVFS	141
<i>Y. He, L. Ma, C. Huang</i>	
OPTIMAL CLOUD INSTANCE ACQUISITION VIA IAAS CLOUD BROKERAGE WITH VOLUME DISCOUNT	151
<i>N. Wang, J. Wu</i>	
OFM: OPTIMIZED FLOW MIGRATION FOR NFV ELASTICITY CONTROL	161
<i>C. Sun, J. Bi, Z. Meng, X. Zhang, H. Hu</i>	
REDUCING WEB LATENCY THROUGH DYNAMICALLY SETTING TCP INITIAL WINDOW WITH REINFORCEMENT LEARNING	171
<i>X. Nie, Y. Zhao, D. Pei, G. Chen, K. Sui, J. Zhang</i>	
RIDESHARING AS A SERVICE: EXPLORING CROWDSOURCED CONNECTED VEHICLE INFORMATION FOR INTELLIGENT PACKAGE DELIVERY	181
<i>F. Wang, Y. Zhu, F. Wang, J. Liu</i>	
ROBUST AND RAPID CLUSTERING OF KPIS FOR LARGE-SCALE ANOMALY DETECTION	191
<i>Z. Li, Y. Zhao, R. Liu, D. Pei</i>	
SCHEDULING COFLOWS WITH INCOMPLETE INFORMATION	201
<i>T. Zhang, F. Ren, R. Shu, B. Wang</i>	

SDNKEEPER: LIGHTWEIGHT RESOURCE PROTECTION AND MANAGEMENT SYSTEM FOR SDN-BASED CLOUD	211
<i>X. Leng, K. Hou, Y. Chen, K. Bu, L. Song</i>	
SLOW BUT STEADY: CAP-BASED CLIENT-NETWORK INTERACTION FOR IMPROVED STREAMING EXPERIENCE	221
<i>V. Krishnamoorthi, N. Carlsson, E. Halepovic</i>	
SOFTWARE-DEFINED LABEL SWITCHING: SCALABLE PER-FLOW CONTROL IN SDN	231
<i>N. Huang, Q. Li, D. Lin, X. Li, G. Shen, Y. Jiang</i>	
THROUGHPUT, COVERAGE AND SCALABILITY OF LORA LPWAN FOR INTERNET OF THINGS	241
<i>A. Yousuf, E. Rochester, B. Ousat, M. Ghaderi</i>	
VCN: VERSATILE CLOS-TYPE NETWORKS FOR TRAFFIC LOCALITY IN DATA CENTERS	251
<i>J. Duan, Y. Yang</i>	
A STACKELBERG GAME FRAMEWORK FOR MOBILE DATA GATHERING IN LEASING RESIDENTIAL SENSOR NETWORKS	261
<i>Y. Zeng, P. Zhou, J. Liu, Y. Yang</i>	
A WIFI-DIRECT BASED LOCAL COMMUNICATION SYSTEM	267
<i>Z. Wang, F. Li, X. Wang, T. Li, T. Hong</i>	
ALB: ADAPTIVE LOAD BALANCING BASED ON ACCURATE CONGESTION FEEDBACK FOR ASYMMETRIC TOPOLOGIES	273
<i>Q. Shi, F. Wang, D. Feng, W. Xie</i>	
AN ONLINE APPROXIMATE STREAM PROCESSING FRAMEWORK WITH CUSTOMIZED ERROR CONTROL	279
<i>X. Wei, Y. Liu, X. Wang, S. Gao</i>	
ANCHOR SELECTION FOR LOCALIZATION IN LARGE INDOOR VENUES	285
<i>O. Oshiga, X. Chu, Y.-W. Leung, J. Ng</i>	
AUTHENTICATION OF MULTI-DIMENSIONAL TOP-K QUERY ON UNTRUSTED SERVER	291
<i>X. Zhu, J. Wu, W. Chang, G. Wang, Q. Liu</i>	
COMPLETION TIME MINIMIZATION IN MULTI-USER TASK SCHEDULING WITH HETEROGENEOUS PROCESSORS AND BUDGET CONSTRAINTS	297
<i>S. Sundar, J. Champati, B. Liang</i>	
DATA UTILITY MAXIMIZATION WHEN LEVERAGING CROWDSENSING IN MACHINE LEARNING	303
<i>J. Li, J. Wu, Y. Zhu</i>	
DEEP AND BROAD LEARNING BASED DETECTION OF ANDROID MALWARE VIA NETWORK TRAFFIC	309
<i>S. Wang, Z. Chen, Q. Yan, K. Ji, L. Wang, B. Yang, M. Conti</i>	
DEVICE-AGNOSTIC LOG ANOMALY CLASSIFICATION WITH PARTIAL LABELS	315
<i>W. Meng, Y. Liu, S. Zhang, D. Pei, H. Dong, L. Song, X. Luo</i>	
FAULT INJECTION FRAMEWORK FOR ASSESSING FAULT CONTAINMENT OF TTETHERNET AGAINST BABBLING IDIOT FAILURES	321
<i>D. Onwuchekwa, R. Obermaisser</i>	
IMGPricing: EVERYONE CAN EARN PROPER REWARDS BY SIMPLY TAKING PHOTOS	327
<i>Q. Li, F. Wu, G. Chen</i>	
IMPROVING QUALITY OF EXPERIENCE OF SERVICE-CHAIN DEPLOYMENT FOR MULTIPLE USERS	333
<i>I.-C. Wang, C. Wen, H. Chao</i>	
IMPROVING QUALITY OF EXPERIENCE FOR MOBILE BROADCASTERS IN PERSONALIZED LIVE VIDEO STREAMING	339
<i>Q. Ren, Y. Cui, W. Wu, C. Chen, Y. Chen, J. Liu, H. Huang</i>	
OBMA: MINIMIZING BITMAP DATA STRUCTURE WITH FAST AND UNINTERRUPTED UPDATE PROCESSING	345
<i>C. Zhang, Y. Feng, H. Song, Y. Wan, W. Xu, Y. Wang, H. Dai, Y. Li, B. Liu</i>	
ONLINE CONTROL OF CLOUD AND EDGE RESOURCES USING INACCURATE PREDICTIONS	351
<i>L. Jiao, A. Tulino, J. Llorca, Y. Jin, A. Sala, J. Li</i>	
PROSC+: PROFIT-DRIVEN ONLINE PARTICIPANT SELECTION IN COMPRESSIVE MOBILE CROWDSENSING	357
<i>Y. Chen, D. Guo, M. Xu</i>	
PROVIDING VNF SERVICES WITH PIPE&HOSE MODEL BASED NONBLOCKING SDN NETWORKS	363
<i>Y. Zhao, J. Fan, H. Chen, C. Qiao</i>	

SCALABLE GROUND-TRUTH ANNOTATION FOR VIDEO QOE MODELING IN ENTERPRISE	
WIFI	369
<i>M. Dasari, S. Sanadhya, C. Vlachou, K.-H. Kim, S. Das</i>	
SHAPING DEADLINE COFLOWS TO ACCELERATE NON-DEADLINE COFLOWS	375
<i>R. Wu, W. Li, K. Li, X. Zhou</i>	
SUBSCRIBER-DRIVEN CLOUD INTERFERENCE MITIGATION FOR NETWORK SERVICES	381
<i>J. Mukherjee, D. Krishnamurthy</i>	
TIME-EFFICIENT RFID-BASED STOCKTAKING WITH A COARSE-GRAINED INVENTORY	
LIST	387
<i>W. Zhu, X. Meng, X. Peng, J. Cao, M. Raynal</i>	
TOWARD ACCURATE INFERENCE OF WEB ACTIVITIES FROM PASSIVE DNS DATA	393
<i>J. Su, Z. Li, S. Grumbach, K. Salaatian, C. Han, G. Xie</i>	
TOWARD SMART AND COOPERATIVE EDGE CACHING FOR 5G NETWORKS: A DEEP	
LEARNING BASED APPROACH	399
<i>H. Pang, J. Liu, X. Fan, L. Sun</i>	
TOWARDS A FAST REGULAR EXPRESSION MATCHING METHOD OVER COMPRESSED	
TRAFFIC	405
<i>X. Sun, H. Li, X. Lu, D. Zhao, Z. Peng, C. Hu</i>	
AN ONLINE PLACEMENT SCHEME FOR VNF CHAINS IN GEO-DISTRIBUTED CLOUDS	411
<i>R. Zhou</i>	
DATA QUALITY AWARE TASK ALLOCATION UNDER A FEASIBLE BUDGET IN MOBILE	
CROWDSENSING	413
<i>X. Wei, Y. Wang, S. Gao, Y. Tang</i>	
DESIGN AND EVALUATION OF IN-SITU RESOURCE PROVISIONING METHOD FOR	
REGIONAL IOT SERVICES	415
<i>Y. Nakamura, T. Mizumoto, H. Suwa, Y. Arakawa, H. Yamaguchi, K. Yasumoto</i>	
EDGE COMPUTING EMPOWERED GENERATIVE ADVERSARIAL NETWORKS FOR	
REALTIME ROAD SENSING	417
<i>Y. He, X. Fan, F. Wang, F. Wang, J. Liu</i>	
ENERGY-AWARE ALLOCATION OF APPROXIMATE QUERY PROCESSING OVER DATA	
STREAMS WITH ERROR GUARANTEE	419
<i>X. Wei, Y. Liu, S. Gao, X. Wang</i>	
HIGHLIGHT-AWARE CONTENT PLACEMENT IN CROWDSOURCED LIVECAST SERVICES	421
<i>C. Zhang, J. Liu, H. Pang, F. Wang</i>	
IMPROVED ADAM OPTIMIZER FOR DEEP NEURAL NETWORKS	423
<i>Z. Zhang</i>	
MINIMIZING THE CASK EFFECT OF MULTI-SOURCE CONTENT DELIVERY	425
<i>X. Chen, Z. Li, T. Xu, E. Zhai, Y. Liu, M. Zhao, Y. Liu</i>	
IMPROVING TRILL MESH NETWORK'S THROUGHPUT USING SMART NICS	427
<i>D. Cerovic, W. Piccolo, A. Amamou, K. Haddadou</i>	
PRACTICAL KEY TAG MONITORING IN RFID SYSTEMS	429
<i>J. Yu, W. Gong, J. Liu, L. Chen, F. Wang, H. Pang</i>	
PREDICTING OUTAGES IN RADIO NETWORKS WITH ALARM DATA	431
<i>D. Kushnir, G. Gohil, Z. Sayeed, H. Uzunalioglu</i>	
SENSING POWER SPECTRUM DENSITY OF TRUE ULTRASOUNDS ON MOBILE DEVICES	433
<i>Y. Chen, W. Gong, J. Liu, F. Wang, H. Pang</i>	
SWAM: SDN-BASED WI-FI SMALL CELLS WITH JOINT ACCESS-BACKHAUL AND MULTI-	
TENANT CAPABILITIES	435
<i>M. Grandi, D. Camps-Mur, A. Betzler, J. Aleixendri, M. Catalan-Cid</i>	
Author Index	