Pang-Wei Tsai [My Email Address](images/mail-pwtsai.png)

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Education

- Ph.D. Student in Institute of Computer and Communication Engineering, National Cheng Kung University, Taiwan.
    - Ph.D. Candidate 2014/02~present
- M.S. in Institute of Computer and Communication Engineering, National Cheng Kung University, Taiwan.
- B.S. in Department of Electrical Engineering, National Cheng Kung University, Taiwan.

Specialties

- Network Management: routing and switching, monitoring, and architecture design
- Software-defined Networking: OpenFlow
- Virtualization: XenServer, and VMWare

Programming Languages

- Shell Scripts (bash and csh), C, PHP, HTML/CSS, and Perl

Certifications

- Cisco CCNA (~Jan. 12, 2020)
- EC-Council CHFI (~Jun. 19, 2019)
- EC-Council CEH (~Aug. 06, 2018)

Honors and Achievements

- **Best Student Paper Award**, the 42th Asia-Pacific Advanced Network (Network Research Workshop), 2016. Title: "Design and implementation of monitoring schemes for software-defined routing over a federated multi-domain SDN testbed"

- **Championship**, Software-defined Networking Contest, 2014. (domestic) Title: "A Fast Path Migration of Fault Tolerant Development in Software defined Networking"
- **Pan Wen-Yuan Memorial Scholarship**, Ph.D. Student, 2013.
- **Best Student Paper Award**, the 36th Asia-Pacific Advanced Network (Network Research Workshop), 2013. Title: "Toward inter-connection on OpenFlow research networks"
- **Excellent Paper Award**, International Conference on Advanced Information Technologies, 2013. (domestic) Title: "A flexible Software Development Platform based on Open- and Embedded- Networking Device"
- **Phi Tau Phi Scholastic Honor Society**, honorary member, 2012.
- **Best Design Award**, Xilinx Open Source Hardware & Embedded System Contes, 2012. Title: "A Traffic Management Module in OpenFlow Switch on NetFPGA Platform"
- **Excellent Paper Award**, Taiwan Academic Network Conference, 2012. (domestic) Title: "Planning and Deployment of OpenFlow Networks over Internet"
- **Full-Design Award**, Embedded System Design Contest, 2010. (domestic) Title: "Using NetFPGA to Implement a High-speed Firewall"

Publications: Journal Papers

1. **P.-W. Tsai**, F. Piccialli, C.-W. Tsai, M.-Y. L. Luo, and C.-S. Yang, "Control frameworks in network emulation testbeds: A survey," Journal of Computational Science, 2017. (Accepted)
2. A. C. Risdianto, **P.-W. Tsai**, T. C. Ling, C.-S. Yang, and J. Kim, "Enhanced ONOS SDN controllers deployment for federated multidomain SDN-Cloud with SD-Routing-Exchange," Malaysian Journal of Computer Science, 2016. (Accepted)
3. K.-M. Cho, **P.-W. Tsai**, C.-W. Tsai, and C.-S. Yang, "A hybrid metaheuristic algorithm for vm scheduling with load balancing in cloud computing," Neural Computing and Applications, vol. 26, no. 6, pp. 1297-1309, 2015.
4. M.-Y. Luo, J. Chen, J. Mambretti, S.-W. Lin, F. Yeh, **P.-W. Tsai**, and C.-S. Yang, "Network virtualization implementation over global research production networks," Journal of Internet Technology, vol. 14, no. 7, pp. 1061-1072, 2013.
5. W.-Y. Huang, J.-W. Hu, S.-C. Lin, T.-L. Liu, **P.-W. Tsai**, C.-S. Yang, F.-I. Yeh, J.-H. Chen, and J. J. Mambretti, "Design and implementation of automatic network topology discovery system for international multidomain future internet testbed," Journal of Internet Technology, vol. 14, no. 2, pp. 181-188, 2013.

Publications: Conference Papers

1. C.-S. Yang, **P.-W. Tsai**, J.-F. Huang, and T.-L. Liu, "Design and development of a large-scale network testbed on a research and education network," in Proceedings of the 8th International Conference on Emerging Networks and Systems Intelligence, 2016, pp. 423-427.

2. **P.-W. Tsai**, A. C. Risdianto, T. C. Ling, J. Kim, and C.-S. Yang, "Design and implementation of monitoring schemes for software-defined routing over a federated multi-domain SDN testbed," in Proceedings of the 42th Asia-Pacific Advanced Network, vol. 42, 2016, pp. 27-33, (Best Student Paper Award).

3. A. C. Risdianto, T. C. Ling, **P.-W. Tsai**, C.-S. Yang, and J. Kim, "Leveraging open-source software for federated multisite SDN-cloud playground," in Proceedings of the 2016 IEEE NetSoft Conference and Workshops, 2016, pp. 423-427.

4. **P.-W. Tsai**, C.-Y. Hsu, M.-Y. Luo, and C.-S. Yang, "On the implementation of adaptive flow measurement in the SDN-enabled network: A prototype," in Proceedings of the 40th Asia-Pacific Advanced Network, vol. 40, pp. 7-13, 2015.

5. **P.-W. Tsai**, P.-M. Wu, C.-T. Chen, M.-Y. Luo, and C.-S. Yang, "On the implementation of path switching over SDN-enabled network: A prototype," in Proceedings of the 2015 IEEE International Conference on Consumer Electronics-Taiwan, 2015, pp. 90-91.

6. J.-L. Chen, K.-W. Huang, **P.-W. Tsai**, and C.-S. Yang, "A prototype generation with same class label proportion method for nearest neighborhood classification," in Proceedings of the 2015 IEEE International Conference on Consumer Electronics-Taiwan, 2015, pp. 96-97.

7. **P.-W. Tsai**, W.-H. Fong, K.-W. Huang, M.-Y. Luo, and C.-S. Yang, "Design and development of virtual nodes in the network testbed for emulation," in Proceedings of the 2015 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing, 2015, pp. 101-106.

8. C.-Y. Hsu, **P.-W. Tsai**, H.-Y. Chou, M.-Y. Luo, and C.-S. Yang, "A flowbased method to measure traffic statistics in software defined network," in Proceedings of the 38th Asia-Pacific Advanced Network, vol. 38, 2014, pp. 19-22.

9. **P.-W. Tsai**, P.-w. Cheng, C.-S. Yang, M.-Y. Luo, and J.-J. Chen, "Supporting extensions of VLAN-tagged traffic across OpenFlow networks," in Proceedings of the 2nd GENI Research and Educational Experiment Workshop, 2013, pp. 61-65.

10. **P.-W. Tsai**, P.-W. Cheng, H.-Y. Chou, M.-Y. Luo, and C.-S. Yang, "Toward inter-connection on OpenFlow research networks," in Proceedings of the 36th Asia-Pacific Advanced Network, vol. 36, 2013, pp. 9-16, (Best Student Paper Award).

11. **P.-W. Tsai**, H.-Y. Chou, P.-W. Cheng, C.-S. Yang, and M.-Y. Luo, "Design and implementation of a prioritized packet-processing module

on NetFPGA platform," in Proceedings of the 10th IEEE International Conference on High Performance Computing and Communications & International Conference on Embedded and Ubiquitous Computing, 2013, pp. 272-277.

12. **P.-W. Tsai**, Y.-T. Lai, P.-W. Cheng, C.-S. Yang, and M.-Y. Luo, "Design and develop an OpenFlow testbed within virtualized architecture," in Proceedings of the 15th Asia-Pacific Network Operations and Management Symposium, 2013, pp. 1-3.

13. **P.-W. Tsai**, H. Y. Chou, M. Y. Luo, and C. S. Yang, "Design a flexible software development environment on NetFPGA platform," in Applied Mechanics and Materials, vol. 411, 2013, pp. 1665-1669.

14. W.-Y. Huang, J.-W. Hu, S.-C. Lin, T.-L. Liu, **P.-W. Tsai**, C.-S. Yang, F. I. Yeh, J. H. Chen, and J. J. Mambretti, "Design and implementation of an automatic network topology discovery system for the future internet across different domains," in Proceedings of the 26th IEEE International Conference on Advanced Information Networking and Applications Workshops, 2012, pp. 903-908.

15. **P.-W. Tsai**, P.-W. Cheng, M.-Y. Luo, T.-L. Liu, and C.-S. Yang, "Planning and implantation of NetFPGA platform on network emulation testbed," in Proceedings of the 32th Asia-Pacific Advanced Network, vol. 32, 2011, pp. 1-7.

16. C.-S. Yang, **P.-W. Tsai**, M.-Y. Liao, C.-C. Huang, and C. E. Yeh, "Location-based mobile multimedia push system," in Proceedings of the 2010 IEEE International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, 2010, pp. 181-184.

17. M.-S. Chen, M.-Y. Liao, **P.-W. Tsai**, M.-Y. Luo, C.-S. Yang, and C. E. Yeh, "Using NetFPGA to offload Linux Netfilter firewall," in Proceedings of the 2nd North American NetFPGA Developers Workshop, 2010.

Patents

- TW I-514174, Co-owner (~Aug. 27, 2033) Title: "Distributed multiple protocol cross-layer log collect method thereof"
- TW I-497951, Co-owner (~May 09, 2033) Title: "A communication system and information forwarding method thereof"

Talk

- Global IPv6 Summit in Taiwan, TWNIC, 2012. (domestic) Title: "An IPv6 Transition Showcase in a Large Campus Network"

Joined Projects

- Network Technology in Cloud Data Center (2014/11~2017/07; MOST-103-2218-E-194-007, 104-3115-E-194-001, 105-2218-E-194-002)
- Study of Network Target Attack, Correlation Analysis and Layered Defense Technology under Cloud Environment (2014/08~2017/07; MOST-103-2221-E-006-145-MY3)
- Design and Development of a Large-Scale Network Testbed based on SDN-enabled Network. (2014/08~2016/07; NARLabs-03103A7300)
- Design and Development of a Global Resource Control Framework System in Large-Scale Network (2014/08~2015/07; MOST-103-2221-E-006-181)
- The Establishment, Promotion and Application of Network Security Testbed based on Cloud-Service (2012/05~2014/04; NSC-101-2219-E-006-004)
- On the study of Network Threat Capture, Ontology Analysis, Tracking and Filter technology (2011/08~2014/07; NSC-100-2218-E-006-028-MY3)
- Interoperability and Certification of Next Generation Internet (2012/04~2012/12; MOTC-DPT-101-03)
- The Establishment, Promotion and Application of Network Security Testbed (2012/05~2014/04/30; NSC-100-2219-E-006-001)
- On the Study and Deployment of Network Virtualization Architecture (2009/08~2011/07; NSC-99-2219-E-006-001)