Monthly Multidisciplinary Research Journal

Review Of Research Journal

Chief Editors

Ashok Yakkaldevi A R Burla College, India

Ecaterina Patrascu Spiru Haret University, Bucharest

Kamani Perera Regional Centre For Strategic Studies, Sri Lanka

RNI MAHMUL/2011/38595

Welcome to Review Of Research

ISSN No.2249-894X

Review Of Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

Regional Editor

Manichander Thammishetty Ph.d Research Scholar, Faculty of Education IASE, Osmania University, Hyderabad.

Advisory Board

Kamani Perera Delia Serbescu Regional Centre For Strategic Studies, Sri Spiru Haret University, Bucharest, Romania Lanka

Ecaterina Patrascu Spiru Haret University, Bucharest

Fabricio Moraes de AlmeidaFederal University of Rondonia, Brazil

Anna Maria Constantinovici AL. I. Cuza University, Romania

Romona Mihaila Spiru Haret University, Romania Xiaohua Yang University of San Francisco, San Francisco

Karina Xavier Massachusetts Institute of Technology (MIT), University of Sydney, Australia USA

May Hongmei Gao Kennesaw State University, USA

Marc Fetscherin Rollins College, USA

Liu Chen Beijing Foreign Studies University, China Mabel Miao Center for China and Globalization, China

Ruth Wolf University Walla, Israel

Jie Hao

Pei-Shan Kao Andrea University of Essex, United Kingdom

Loredana Bosca Spiru Haret University, Romania

Ilie Pintea Spiru Haret University, Romania

Mahdi Moharrampour Islamic Azad University buinzahra Branch, Qazvin, Iran

Titus Pop PhD, Partium Christian University, Oradea, Romania

J. K. VIJAYAKUMAR King Abdullah University of Science & Technology, Saudi Arabia.

George - Calin SERITAN Postdoctoral Researcher Faculty of Philosophy and Socio-Political Anurag Misra Sciences Al. I. Cuza University, Iasi

REZA KAFIPOUR Shiraz University of Medical Sciences Shiraz, Iran

Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur

Nimita Khanna Director, Isara Institute of Management, New Bharati Vidyapeeth School of Distance Delhi

Salve R. N. Department of Sociology, Shivaji University, Kolhapur

P. Malyadri Government Degree College, Tandur, A.P.

S. D. Sindkhedkar PSGVP Mandal's Arts, Science and Commerce College, Shahada [M.S.]

DBS College, Kanpur

C. D. Balaji Panimalar Engineering College, Chennai

Bhavana vivek patole PhD, Elphinstone college mumbai-32

Awadhesh Kumar Shirotriya Secretary, Play India Play (Trust), Meerut (U.P.)

Govind P. Shinde Education Center, Navi Mumbai

Sonal Singh Vikram University, Ujjain

Jayashree Patil-Dake MBA Department of Badruka College Commerce and Arts Post Graduate Centre (BCCAPGC), Kachiguda, Hyderabad

Maj. Dr. S. Bakhtiar Choudhary Director, Hyderabad AP India.

AR. SARAVANAKUMARALAGAPPA UNIVERSITY, KARAIKUDI, TN

V.MAHALAKSHMI Dean, Panimalar Engineering College

S.KANNAN Ph.D, Annamalai University

Kanwar Dinesh Singh Dept.English, Government Postgraduate College, solan

More.....

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.ror.isrj.org

Review Of Research

R

AUTOMATIC TEST PACKET GENERATION



Megha Laxman Bodhale Faculty Of Engineering, Computer Engg. Department, Dattakala Shikshan Sanstha,s Dattakala Group of Institution, A/P Swami chincholi, Tal-Daund, Dist-Pune.

Co - Author Details :

Kiran Gaikwad

Faculty Of Engineering, Computer Engg. Department , Dattakala Shikshan Sanstha,s Dattakala Group of Institution, A/P Swami chincholi, Tal-Daund, Dist-Pune.





ABSTRACT

etworks are getting larger and more complex, yet administrators rely on rudimentary tools such as "ping" and "trace route" to debug problems. We propose an automated and systematic approach for testing and debugging networks called "Automatic Test Packet Generation" (ATPG). ATPG reads router configurations and generates a deviceindependent model. The model is used to generate a minimum set of test packets to (minimally) exercise every link in the network or (maximally) exercise every rule in the network. Test packets are sent periodically, and detected failures trigger a separate mechanism to localize the fault. ATPG can detect both functional (e.g., incorrect firewall rule) and performance problems

(e.g., congested queue). ATPG complements but goes beyond earlier work in static checking (which cannot detect liveness or performance faults) or fault localization (which only localize faults given liveness results). We describe our prototype ATPG implementation and results on two real-world data sets: Stanford University's backbone network and Internet2. We find that a small number of test packets suffice to test all rules in these networks: For example, 4000 packets can cover all rules in Stanford backbone network, while 54 are enough to cover all links. Sending 4000 test packets 10 times per second consume less than 1% of link capacity. ATPG code and the datasets are publicly available.

KEYWORDS : Automatic Test Packet Generation (ATPG), Access Control Lists (ACLs), Forwarding

Information Bases (FIBs).

INTRODUCTION

It is notoriously hard to debug networks. Every day, network engineers wrestle with router miss configurations, fiber cuts, faulty interfaces, mislabeled cables, software bugs, intermittent links, and a myriad other reasons that cause networks to misbehave or fail completely. Network engineers hunt down bugs using the most rudimentary tools (e.g., ping, trace route, SNMP, and tcp dump) and track down root causes using a combination of accrued wisdom and intuition. Debugging networks is only becoming harder as networks are getting bigger (modern,000 flows), and are getting more complicated (with over6,000RFCs, router software Is based on millions of lines of source code, and network chips often contain billions of gates).Small wonder that network engineers have been labeled "masters of complexity".

EXISTING SYSTEM:

Testing liveness of a network is a fundamental problem for ISPs and large data center operators. Sending probes between every pair of edge ports is neither exhaustive nor scalable. It suffices to find a minimal set of end-to-end packets that traverse each link. However, doing this requires a way of abstracting across device specific configuration files, generating headers and the links they reach, and finally determining a minimum set of test packets (MinSet-Cover).To check enforcing consistency between policy and the configuration.

DISADVANTAGES OF EXISTING SYSTEM:

Not designed to identify liveness failures, bugs router hardware or software, or performance problems. The two most common causes of network failure are hardware failures and software bugs, and that problems manifest themselves both as reach ability failures and throughput/latency degradation.

PROPOSED SYSTEM:

Automatic Test Packet Generation (ATPG) framework that automatically generates a minimal set of packets to test the liveness of the underlying topology and the congruence between data plane state and configuration specifications. The tool can also automatically generate packets to test performance assertions such as packet latency. It can also be specialized to generate a minimal set of packets that merely test every link for network liveness.

ADVANTAGES OF PROPOSED SYSTEM:

A survey of network operators revealing common failures and root causes. A test packet generation algorithm A fault localization algorithm to isolate faulty device and rules. ATPG use cases for functional and performance testing.

SYSTEM REQUIREMENTS: HARDWARE REQUIREMENTS:

System: Pentium IV 2.4 GHz. Hard Disk: 40 GB. Floppy Drive: 44 Mb. Monitor: 15 VGA Color. Ram: 512 Mb.

SOFTWARE REQUIREMENTS:

Operating system: Windows XP/7. Coding Language: JAVA/J2EE IDE: Net beans 7.4 Database: MYSQL

System Architecture



ATPG SYSTEM:

The system first collects all the forwarding states from the network (step1). This usually involves reading the FIBs, ACLs or configuration files and obtaining the topology. ATPG uses header Space Analysis to find reach ability between all the test terminals (step2). The result is then used by the Test Packet Selection algorithm to find a minimal set of test packets necessary for complete testing of all the rules in the network (step 3). These packets will be sent periodically in the network by the test terminal (step 4). If an error is detected, the fault localization algorithm is invoked to narrow down the cause of the error (step 5).

FAULT MODEL:

A rule fails if its observed behavior is different from what we expected. We keep track of where rules fail using a result function R. for a particular rule, r, the result function is defined as

R(r,pk)= {0 if pk fails at rule r 1 if pk succeeds at rule r.

We will only consider action faults, because they cover a large number of likely failure conditions, and will be detected by only one test packet per rule. We generally observe a test packet at

the edge of the network i.e. after processing by every rule in the network. Therefore, we define an end -to-end version of the result function as

R(pk)={0,if pk fails 1,if pk succeeds.

CONCLUSION:

In current system it uses a method that is neither exhaustive nor scalable. Though it reaches all pairs of edge nodes it could not detect faults in liveness properties. ATPG goes beyond this and test for reach ability policy (by checking all rules) and performance measure (by associating latency and loss of test packets).

ACKNOWLEDGEMENT:

We wish to express our thanks to the guide Prof Mr. A. Priyadarshi and our HOD Prof Mr.Sayyad. We also thanks to our departmental staff for their contribution and support.

REFERENCE:

1) Hongyi Zeng, Peyman Kazemian, George Varghese, and Nick McKeown, "Automatic Test Packet Generation", VOL. 22, NO. 2, APRIL 2014.

2) A. Dhamdhere, R. Teixeira, C. Dovrolis, and C. Diot Net diagnoser: troubleshooting network unreachabilities using end-to-end probes and routing data. In Proceedings of the 2007ACMCoNEXTconference, CoNEXT'07, pages 18:1 {18:12, NewYork, NY, USA, 2007. ACM.

3) N.Duffield. "Network tomography of binary network performance characteristics. Information Theory", IEEE Transactionson, 52 (12):5373{5388, dec.2006.

4) N. Duffield, F. LoPresti, V. Paxson, and D. Towsley, "Inferring link loss using striped unicast probes". In INFOCOM2001.Twentieth Annual Joint Conference of the IEEE Computer and Communications Societies. Proceedings. IEEE, volume2, pages 915 {923vol.2, 2001.

5) M. Kuzniar, P. Peresini, M. Canini, D. Venzano, and D. Kostic. "A SOFT way for open flow switches interoperability testing". In proceedings of the Seventh conference on emerging Networking experiments and Technologies, CoNEXT'12, 2012.

Publish Research Article International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper,Summary of Research Project,Theses,Books and Books Review for publication,you will be pleased to know that our journals are

Associated and Indexed, India

- Directory Of Research Journal Indexing
- International Scientific Journal Consortium Scientific
- * OPEN J-GATE

Associated and Indexed, USA

- DOAJ
- EBSCO
- Crossref DOI
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Databse
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database

Review Of Research Journal 258/34 Raviwar Peth Solapur-413005,Maharashtra Contact-9595359435 E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com Website : www.ror.isrj.org