# Cottrell Papers and Publications

**SCIENTIFIC PUBLICATIONS BY DR. LES COTTRELL**

LIST THE CHAMPION HERE (BEN)

**Table of Contents**


- Books:
- Interviews
- Reports:
- Patent:
- SLAC WWW Wizard Les Cottrell:
- Papers
- Talks


## Books:

**Writing CGI Scripts in REXX**
by Les Cottrell. Chapter 30 in "HTML 3.2 and CGI Unleashed", J. December and M. Ginsburg, pp 861-876, Published by Sams.net Publishing
ISBN 1-57521-177-7.

**The Internet, Mobile Computing and Mobile Phones in Developing Countries**,
Chapter 1 (pp 7-36), in "m-Science Sensing, Computing and Dissemination" Editors E. Canessa and M. Zennaro, Published by ICTP - The Abdus Salam International Center for Theoretical Physics, Nov 2010, ISBN 92-95003-43-8

## Interviews

AIP Interview with Les Cottrell, April 2021.

Mapping the Digital Divide, Interview with Symmetry Magazine, 8/2/2008

Running, SLAC Today, 5/7/2008

Les Cottrell: Bringing the Internet to China, Symmetry Magazine, 11/1/2005

## Reports:

Annual reports of the International Committee for Future Accelerators (ICFA) Standing Committee on Inter-Regional Connectivity (SCIC) Network Monitoring Reports: 2002-2017

**What's next; An Aria With Hiccups: The Music of Data Networks.**
Published by the New York Times see http://www.nytimes.com/2002/12/19/technology/what-s-next-an-aria-with-hiccups-the-music-of-data-networks.html

## Patent:

**Image Transformations on an Interactive Raster Scan or Matrix Display.**
Alan Stanley Murphy, Roger Leslie Cottrell, US patent 4,688,181 date August 18, 1987

## SLAC WWW Wizard Les Cottrell:

First U.S. Website: Documentation of the Early Web at SLAC (1991-1994). The First North American Web site. See more at: https://www.scrumalliance.org/community/profile/lcottrell

## Papers

**The First Permanent International Computer Network Connection Between China and the USA**

R. L. A. Cottrell, R. S. Xu,
Invited talk at the Symposium on 30 years of BES Physics held at the Institute of High Energy Physics, Beijing, P. R. China, from September 5 to 6, 2019.
Also, see the paper submitted to the BES Symposium.
OSTI reference https://www.osti.gov/servlets/purl/1834055

**Substituting Missing Values in End-to-end Internet Performance Measurements using k-Nearest Neighbors**

Saqib Ali, Guojun Wang, Xiaofei Xing, Roger Leslie Cottrell, 2017 IEEE International Symposium on Parallel and Distributed Processing with Applications and 2017 IEEE International Conference on Ubiquitous Computing and Communications (ISPA/IUCC)

**A Blockchain-based Decentralized Data Storage and Access Framework for PingER.**

Saqib Ali, Guojun Wang, Bebo White, Roger Leslie Cottrell, 2018 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications/ 12th IEEE International Conference On Big Data Science And Engineering

**Internet Performance Analysis of South Asian Countries using End-to-End Internet Performance Measurements.**

Saqib Ali, Guojun Wang, Roger Leslie Cottrell, Sara Masood, 2017 IEEE International Symposium on Parallel and Distributed Processing with Applications and 2017 IEEE International Conference on Ubiquitous Computing and Communications (ISPA/IUCC)

**High Performance Data Transfer for Distributed Data Intensive Sciences.**

Chin Fang, (Zettar, Inc., Mountain View, CA), R 'Les' A. Cottrell, Andrew B. Hanushevsky, Wilko Kroeger, Wei Yang, (SLAC) . SLAC-TN-16-001, Sep 2016.

**Applying Data Warehousing and Big Data Techniques to Analyze Internet Performance.**

T.M.S. Barbosa, R. Souza, S.M.S. Cruz, M.L. Campos, R.Les Cottrell, (SLAC) .
SLAC-PUB-16464, Dec 2015. 6pp.
Presented at the 4th International Conference on Internet Applications, Protocols and Services (NETAPPS2015), 1-3 Dec 2015, Cyberjaya, Malaysia.

**Adaptive Geolocation of Internet Hosts.**

Raja A.A. Khan, (NUST, Rawalpindi), Anjum Naveed, (Malaya U.), R.Les Cottrell, (SLAC). SLAC-PUB-16463, Dec 2015. 3pp.
Presented at the 4th International Conference on Internet Applications, Protocols and Services (NETAPPS2015), 1-3 Dec 2015, Cyberjaya, Malaysia.

**PingER Malaysia-Internet Performance Measuring Project: A Case Study.**

Saqib Ali, R.Les Cottrell, Anjum Nveed, (SLAC) . SLAC-PUB-16462, Dec 2015. 6pp.
Presented at the 4th International Conference on Internet Applications, Protocols and Services (NETAPPS2015), 1-3 Dec 2015, Cyberjaya, Malaysia.

**Worldwide Internet Performance Measurements Using Lightweight Measurement Platforms.**

R.Les Cottrell, Thiago Barbosa, Bebo White, (SLAC), Jophari Abdullah, (UMalaysia U., Sarawak), Topher White, (Rainforest Connection) . SLAC-PUB-16461, Dec 2015. 6pp.
Presented at the 4th International Conference on Internet Applications, Protocols and Services (NETAPPS2015), Dec.1-3, 2015, Cyberjaya, Malaysia.

**A Survey On Big Data Indexing Strategies.**

Fatima Binta Adamu, Adib Habbal, Suhaidi Hassan, (U. Utara Malaysia) , R.Les Cottrell, Bebo White, (SLAC) , Ibrahim Abdullah, (U. Utara Malaysia) . SLAC-PUB-16460, Dec 2015. 6pp.
Presented at the 4th International Conference on Internet Applications, Protocols, and Services (NETAPPS2015), Dec.1-3, 2015, Cyberjaya, Malaysia.

**Linked Open Data Publication Strategies: Application in Networking Performance Measurement Data.**

Renan Souza, (UFRJ, Rio de Janeiro) , Les Cottrell, Bebo White, (SLAC) , Maria L. Campos, Marta Mattoso, (UFRJ, Rio de Janeiro) . SLAC-PUB-15950, May 2014. 7pp.
2014 ASE BigData, SocialCom, CyberSecurity Conference, Stanford University, California, May 27 - 31, 2014.

**The Emergence of the Internet and Africa.**

Les Cottrell, (SLAC). SLAC-WP-095, May 2013. 50pp.
SLAC Colloquium, May 6th, 2013.

**Pinging Africa.**
R.Les Cottrell, (SLAC) . SLAC-PUB-15333, Feb 2013. 10pp.
Submitted to IEEE Spectrum

**eGY-Africa: addressing the digital divide for science in Africa.**
C.E. Barton, (Australian Natl. U., Canberra) , C. Amory-Mazaudier, (Lab.Phys.Plasmas, Saint Maur des Fosses) , B. Barry, (Assoc.African Univ., Accra) , C hukwuma, (Olabisi Onabanjo U.) , R.L. Cottrell, (SLAC) , U. Kalim, (Pakistan Natl. U.) , A. Mebrahtu, (Mekelle U.) , M. Petitdidier, (Lab. d'Atmos., Velizy) , B . Rabiu, (Federal Tech. U., Akure) , C. Reeves, (Earthworks bv, Delft) . SLAC-PUB-13852, Jun 2010. 25pp.
Presented at International Conference on Electronic Geophysical Year: State of the Art and Results, Pereslavi-Zalessky, Russia, 3-6 Jun 2009.
Submitted to Russian Journal of Earth Sciences

**Digital Divide in Sub-Saharan Africa Universities: Recommendations and Monitoring.**
Boubakar Barry, (Assoc. Afr. Univ.) , Victor Chukwuma, (Olabisi Onabanjo U.) , Monique Petitdidier, (CEPT, Velizy) , Les Cottrell, (SLAC) , Charles Bartons , (Australian Natl. U., RSES) . SLAC-PUB-13853, Dec 17, 2009. 11pp.

**Quantifying and Mapping the Digital Divide from an Internet Point of View.**
R.Les Cottrell, (SLAC) , Shahryar Khan, (NUST, Rawalpindi) , Jerrod Williams, (SLAC) , Akbar Mehdi, Umar Kalim, Arshad Ali, (NUST, Rawalpindi) . SLAC-PUB-13398, Sep 18, 2008. 13pp.

**Quantifying the Digital Divide: A Scientific Overview of Network Connectivity and Grid Infrastructure in South Asian Countries.**
Shahryar Muhammad Khan, (SLAC & NUST, Rawalpindi) , R.Les Cottrell, (SLAC) , Umar Kalim, Arshad Ali, (NUST, Rawalpindi) . SLAC-PUB-12851, Oct 30, 2007. 11pp.
Presented at International Conference on Computing in High Energy and Nuclear Physics (CHEP 07), Victoria, BC, Canada, 2-7 Sep 2007.
Published in **J.Phys.Conf.Ser.119:052022,2008**.

**Quantifying and Mapping the Digital Divide from Internet point of View.**
Les Cottrell, Sheryar Khan, Jerrod Williams, Akbar Mehdi, Umar Kalim, Arshad Ali, (NUST, Rawalpindi & SLAC) . SLAC-PUB-12510, May 11, 2007. 13pp.
Presented at 4th Asian Applied Computing Conference (AACC 2007) on Bridging the Digital Divide, Kathmandu, Nepal, 8-10 Jun 2007.

**Scientific Measure of Africa's Connectivity.**
M. Zennaro, E. Canessa, K.R. Sreenivasan, (ICTP, Trieste) , A.A. Rehmatullah, R.L. Cottrell, (SLAC) . SLAC-PUB-11832, Apr 24, 2006. 14pp.
Submitted to Information Technology and Internationa Development.

**Evaluation of Techniques to Detect Significant Network Performance Problems using End-to-End Active Network Measurements.**
R.Les Cottrell, Connie Logg, Mahesh Chhaparia, (SLAC) , Maxim Grigoriev, (Fermilab) , Felipe Haro, (Chile U., Catolica) , Fawad Nazir, (NUST, Rawalpindi) , Mark Sandford, (Loughborough U.) . SLAC-PUB-11653, Jan 25, 2006. 11pp.
Contributed to 10th IEEE / IFIP Network Operations and Management Symposium (NOMS 2006), Vancouver, Canada, 3-7 Apr 2006.

**Proposal for a Magnetic Detector for PEP.**
D. Cutts *et al,* R.Les Cottrell, (SLAC). PEP-PROPOSAL-008, Dec 1976. 105pp.

**Super DELCO.**
Barry C. Barish *et al,* R.Les Cottrell, (SLAC). PEP-Proposal-015, Oct 1977. 67pp.

**A Search for Parity Violation in the Inelastic Scattering of Polarized Electrons from Deuterium at 19.4-GeV.**
C.Y. Prescott *et al,* R.Les Cottrell, (SLAC). 1976. Presented at Conf. on High Energy Physics with Polarized Beams and Targets, Argonne, Ill., 1976., Vol. Ii*, Dubna 1976, B55-b56.

**Preliminary Results from a Recent Experiment on Inclusive Deep Inelastic Scattering.**
W.B. Atwood, Elliott D. Bloom, R.L.A. Cottrell, H. DeStaebler, M. Mestayer, C.Y. Prescott, L.s. Rochester, S. Stein, Richard E. Taylor, D. Trines, (SLAC) . Jul 1974. 2pp.
Presented at Int. Conf. on High Energy Physics, London, Eng., Jul 1-10, 1974.

**Evaluation of WAN and LAN links in the gigabit / sec range for large scale data transfers.**
J.J. Bunn, L. Cottrell, S. Luitz, R. Mount, H.B. Newman, J. Patton, D. Salomoni, (SLAC) . Sep 2001. 1pp.
To appear in the proceedings of CHEP'01: Computing in, High-Energy Physics and Nuclear, Beijing, China, 3-7 Sep 2001.

**Recent Results In Inelastic Electron Scattering.**
Elliott D. Bloom *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-0796, Sep 1970. 50pp.
Presented at the XV International Conference on High Energy Physics, Kiev, USSR, Aug 26-Sep4, 1970.

**Determination of the total photon - proton cross-section from high-energy inelastic electron scattering.**
Elliott D. Bloom *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-0653, SLAC-PUB-653, Sep 1969. 17pp. - Submitted to Int. Symp. on Electron and Photon Interactions at High Energies, Daresbury, Sept. 1969.

**Measurement Of The Polarization In Elastic Electron - Proton Scattering.**
Thomas Powell *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-0721, UCRL-19707, Mar 1970. 12pp.
Published in **Phys.Rev.Lett.24:753-755,1970**.

**Search For T Violation In The Inelastic Scattering Of Electrons From A Polarized Proton Target.**
Stephen Rock *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-0720, UCRL-19706, Mar 1970. 15pp.
Published in **Phys.Rev.Lett.24:748-752,1970**.

**Coincidence Electroproduction In The Region Of The Rho Meson.**
Elliott D. Bloom *et al,* R.Les Cottrell, (SLAC) . SLAC-PUB-0955, Aug 1971. 14pp.
Submitted to Int. Symposium on Electron and Photon Interactions at High Energies, Cornell Univ., Ithaca, N.Y., Aug 23-27, 1971.
Published in **Phys.Rev.Lett.28:516,1972**.

**A Study Of Hadronic Final States From Inelastic Muon Scattering In A Hybrid Bubble Chamber Experiment.**
Joseph Ballam *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-1163, Dec 1972. 50pp.
Presented at 16th Int. Conf. on High Energy Physics, Batavia, Ill., Sep 6-13, 1972.
Published in Proc. of Int. Conf. on High Energy Physics, Batavia. Ill., 1972. Batavia, Ill., National Accelerator Lab., 1973. vol. 2, p. 66-82

**Measurements Of Inelastic Electron Scattering Cross-Sections Near One Pion Threshold.**
Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, C.L. Jordan, H. Piel, C.Y. Prescott, R. Siemann, S. Stein, Richard E. Taylor, (SLAC) . SLAC-PUB-1195, Mar 1973. 13pp.
Published in **Phys.Rev.Lett.30:1186,1973**.

**Production of Vector Mesons by Muons in a Hybrid Bubble Chamber Experiment.**
Joseph Ballam *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-1373, Jan 1974. 40pp.
Published in **Phys.Rev.D10:765,1974**.

**High-Energy Single-Arm Inelastic e - p and e - d Scattering at 6-Degrees and 10-Degrees.**
J.S. Poucher *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-1309, Dec 1973. 27pp.
Published in **Phys.Rev.Lett.32:118,1974**.

**Charged Hadron Multiplicities and Topologies in Inelastic mu- p Scattering.**
Joseph Ballam *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-1495, Oct 1974. 12pp.
Published in **Phys.Lett.B56:193,1975**.

**Electron Scattering at 4-Degrees with Energies of 4.5-GeV - 20-GeV.**
S. Stein, W.B. Atwood, Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, C.L. Jordan, H. Piel, C.Y. Prescott, R. Siemann, Richard E. Taylor, (SLAC) . SLAC-PUB-1528, Jan 1975. 75pp.
Published in **Phys.Rev.D12:1884,1975**. TOPCITE = 250+

**A-Dependence of High-Energy Inelastic electron-Nucleus Scattering.**
W.R. Ditzler *et al,* R.Les Cottrell, (SLAC) . SLAC-PUB-1543, Mar 1975. 11pp.
Published in **Phys.Lett.B57:201,1975**. TOPCITE = 50+

**A Search for New Resonances and Thresholds in Inelastic electron Scattering.**
R.Leslie Cottrell *et al.* SLAC-PUB-1612, Jul 1975. 13pp.
Published in **Phys.Rev.D13:166,1976**.

**A Comparison of the Yields of Inelastic electron and Positron Scattering from Hydrogen and Deuterium at Four Momentum Transfers Squared Up to 15-GeV/c**2.**
L.S. Rochester *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-1660, Sep 1975. 10pp.
Published in **Phys.Rev.Lett.36:1284,1976, Erratum-ibid.37:233,1976**.

**Inelastic electron Scattering from Hydrogen at 50-Degrees and 60-Degrees.**
W.B. Atwood, Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, M.D. Mestayer, C.Y. Prescott, L.S. Rochester, S. Stein, Richard E. Taylor, D. Trines, (SLAC) . SLAC-PUB-1758, Jun 1976. 17pp. - Published in **Phys.Lett.B64:479,1976**. TOPCITE = 100+

**Atropos: A Versatile Data Acquisition And Analysis System.**
C.A. Logg, R.Leslie Cottrell, (SLAC) . SLAC-PUB-2220, Oct 1978. 11pp.
Contributed to DECUS Fall Mini/Midi Symp., San Francisco, Calif., Nov 29-30, 1978.

**Simulation Of Lsi-11 / Pdp-11 Series Minicomputers.**
J.R. Myers, R.Leslie Cottrell, B.M. Bricaud, (SLAC) . SLAC-PUB-2302, Apr 1979. 6pp.
Presented at DECUS Spring Mini/Midi Symposium, New Orleans, La., Apr 17-20, 1979.

**Vector Meson Electroproduction At High-Energy.**
Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, C.L. Jordan, M.D. Mestayer, Guthrie Miller, H. Piel, Richard E. Taylor, C.Y. Prescott, (SLAC) . SLAC-PROPOSAL-E-071, SLAC-PROPOSAL-E-71, Jun 1970. 25pp.

**PROPOSAL TO MEASURE INELASTIC ELECTRON SCATTERING FROM HYDROGEN AND DEUTERIUM AT LARGE Q**2 AND SMALL omega'.**
W.B. Atwood, Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, L.K. Gershwin, M.D. Mestayer, C.Y. Prescott, S. Stein, Richard E. Taylor, (SLAC) . SLAC-PROPOSAL-E-089, SLAC-PROPOSAL-E-89, Dec 1971. 29pp.

**Proposal To Measure Inelastic Electron Scattering From D2 And Other Nuclei.**
Elliott D. Bloom *et al,* R.Les Cottrell, (SLAC) . SLAC-PROPOSAL-E-049, SLAC-PROPOSAL-E-49, Jul 1969. 8pp. Includes Suppl.1.

**Forward Angle Electron Scattering.**
Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, C.L. Jordan, M.D. Mestayer, H. Piel, Richard E. Taylor, (SLAC) , C.Y. Prescott, (UC, Santa Cruz) . SLAC-PROPOSAL-E-061, SLAC-PROPOSAL-E-61, Nov 1969. 34pp. Includes Suppl.1.

**Bubble Chamber Study Of Deep Inelastic Muon Scattering.**
Elliott D. Bloom *et al,* R.Les Cottrell, (SLAC). SLAC-PROPOSAL-BC-42, Jun 1970. 16pp. - Includes Suppl.1.

**THE RATIO sigma-L / sigma-t FROM DEEP INELASTIC ELECTRON SCATTERING.**
M.D. Mestayer, W.B. Atwood, Elliott D. Bloom, R.Leslie Cottrell, H.C. DeStaebler, C.Y. Prescott, L.S. Rochester, S. Stein, Richard E. Taylor, D. Trines, (SLAC) . SLAC-PUB-2933, Jun 1982. 13pp. Published in **Phys.Rev.D27:285,1983**. TOPCITE = 50+

**A PROPORTIONAL CHAMBER SYSTEM FOR THE SLAC 20-GeV SPECTROMETER.**
Elliott D. Bloom, R.Leslie Cottrell, G. Johnson, C.Y. Prescott, R. Siemann, S. Stein, (SLAC) . SLAC-PUB-0981, Nov 1971. 44pp. Shorter version presented at IEEE Nuclear Science Symposium, San Francisco, Nov 3-5, 1971. - Published in **Nucl.Instrum.Meth.99:255,1972**.

**An Ibm-370/360 Software Package For Developing Stand Alone Lsi-11 Systems.**
R.Leslie Cottrell, C.A. Logg, (SLAC) . SLAC-PUB-2103, Mar 1978. 7pp.
Contribution to the DECUS Spring Mini/Midi Symp., Chicago, Apr. 25-28, 1978.

**LIMITS ON PARITY VIOLATION IN POLARIZED ELECTRON SCATTERING AT 19.4-GeV.**
W.B. Atwood *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-2123, May 1978. 13pp.
Published in **Phys.Rev.D18:2223,1978**. (*Title changed in journal*)

**Parity Nonconservation in Inelastic Electron Scattering.**
C.Y. Prescott *et al,* R.Les Cottrell, (SLAC) . SLAC-PUB-2148, Jul 1978. 20pp.
Published in **Phys.Lett.B77:347-352,1978**. TOPCITE = 500+

**A Feedback System For Steering And Correcting The Energy Of The Slac Beam In The Beam Switchyard.**
R.Leslie Cottrell, C.A. Logg, M.J. Browne, (SLAC) . SLAC-PUB-2228, Nov 1978. 38pp.
Published in **Nucl.Instrum.Meth.164:405,1979**.

**Further Measurements of Parity Nonconservation in Inelastic electron Scattering.**
C.Y. Prescott *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-2319, May 1979. 15pp.
Published in **Phys.Lett.B84:524,1979**. TOPCITE = 250+

**'Dpak' And 'Hpak': A Versatile Display And Histogramming Package.**
C.A. Logg, A. Boyarski, A.James Cook, R.Leslie Cottrell, S. Sund, (SLAC) . SLAC-R-0196, SLAC-0196-REV.-1, SLAC-R-0196-REV.-1, SLAC-R-196, SLAC-R-196, Jul 1979. 86pp.
Revised Version, SLAC-R-0196 Superceded by SLAC-0196-REV.-1.

**A Test of Parity Violation in the Inelastic Scattering of Polarized Electrons at the Level of the Weak Interaction.**
W. Ash *et al,* R.Les Cottrell, (SLAC) . SLAC-PROPOSAL-E-122, May 1975. 11pp.

**Living Comfortably With Network Growth.**
R.Leslie Cottrell, (SLAC) . SLAC-PUB-3319, Apr 1984. 20pp. Submitted to Data Commun.

**Slacnet: Implementation And Experiences.**
R.Leslie Cottrell, T. Downey, H. Frese, Charles Granieri, M. Huffer, L. Moss, T. Streater, O. Saxton, D.E. Wiser, (SLAC) . SLAC-PUB-3894, Mar 1986. 39pp. - Presented at SHARE 66 Conference, Anaheim, Calif., Mar 16-21, 1986.

**The Vm Version Of Interlan's Ns4240 Xerox Itp Network Software.**
H. Frese, R.Leslie Cottrell, T. Downey, (SLAC) . SLAC-0297, SLAC-297, SLAC-R-0297, SLAC-R-297, Apr 1986. 80pp.

**A Tale Of Two Networks.**
R.Leslie Cottrell, (SLAC) . SLAC-PUB-3767, Oct 1986. 8pp. Printed in Data Communications,
Oct 1986.

**Analysis Of Network Statistics.**
R.Leslie Cottrell, (SLAC) . SLAC-PUB-4234, Feb 1987. 40pp. - Invited talk given at Conf. on Computing in High Energy Physics, Asilomar, Calif., Feb 2-6, 1987. Published in **Comput.Phys.Commun.45:93-109,1987**. Also in Asilomar Computing H.E.Phys.1987:93 (QCD201:T5:1987) (or see above page in: Comput.Phys.Commun.45,1987)

**Network management, status and directions.**
R.L.A. Cottrell, T.C. Streater, (SLAC) . SLAC-PUB-5913, Aug 1992. 4pp.
Presented at 10th International Conference on Computing in High Energy Physics (CHEP 92), Annecy, France, 21-25 Sept 1992.

**Networking with China.**
R.L.A. Cottrell, Charles Granieri, (SLAC) , Lan Fan, Rong-Sheng Xu, (Beijing, Inst. High Energy Phys.) , Yukio Karita, (KEK, Tsukuba) . SLAC-PUB-6478, Apr 1994. 5pp.
Contributed to Computing in High Energy Physics (CHEP 94), San Francisco, CA, 21-27 Apr 1994. Computing in High Energy Physics '94* 192-195. Lawrence Berkeley Lab. - LBL-35822 (94,rec.Feb.95) 192-195.

**Adventures in the evolution of a high bandwidth network for central servers.**
Karl L. Swartz, Les Cottrell, Marty Dart, (SLAC) . SLAC-PUB-6567, Aug 1994. 8pp.
Presented at USENIX Association's 8th Large Installation System Administration Conference (LISA VIII), San Diego, CA, 19-23 Sep 1993.

**Network management and performance monitoring at SLAC.**
C.A. Logg, R.L.A. Cottrell, (SLAC) . SLAC-PUB-6744, SLAC-PUB-95-6744, Mar 1995. 9pp.
Presented at Networld + Interop Conference, Las Vegas, NV, 27-31 Mar 1995.

**BaBar technical design report.**
By BABAR Collaboration (D. Boutigny *et al,* R.Les Cottrell, (SLAC) .). SLAC-R-0457, SLAC-R-457, SLAC-0457, SLAC-457, SLAC-R-95-457, Mar 1995. 618pp.
See also the BOOKS subfile under the following call number: QCD201:S72. TOPCITE = 50+

**Distributed computing environment monitoring and user expectations.**
R.L.A. Cottrell, C.A. Logg, (SLAC) . SLAC-PUB-7008, SLAC-PUB-95-7008, Nov 1995. 7pp.
Contributed to International Conference on Computing in High Energy Physics (CHEP95), Rio de Janeiro, Brazil, 18-22 Sep 1995. Published in CHEP 95: 537-543 (QCD201:T5:1995)

**Network resource and applications management at SLAC.**
C.A. Logg, R.L.A. Cottrell, (SLAC) . SLAC-PUB-7057, Feb 1996. 14pp.
Networld + Interop Engineers Conference, 3-4 Apr 1996, Las Vegas, NV.

**Writing World Wide Web CGI scripts in the Rexx language.**
R.L.A. Cottrell, (SLAC) . SLAC-PUB-7122, Mar 1996. 18pp.
Talk presented at the SHARE Technical Conference, 3-8 Mar 1996, Anaheim, CA.

**What is the internet doing for and to you?**
R.L.A. Cottrell, C.A. Logg, (SLAC) , D.E. Martin, (Fermilab) . SLAC-PUB-7416, Jun 1997. 7pp.
Talk given at Computing in High-energy Physics (CHEP 97), Berlin, Germany, 7-11 Apr 1997.

**Internet performance and reliability measurements.**
R.L. Cottrell, C.A. Logg, (SLAC) , D. Martin, (Fermilab) . SLAC-PUB-9785, Apr 1997. 6pp.
Talk given at Computing in High-energy Physics (CHEP 97), Berlin, Germany, 7-11 Apr 1997.

**What is the internet doing? Performance and reliability monitoring for the HEP community.**
R.L.A. Cottrell, Connie A. Logg, (SLAC) , David E. Martin, (Fermilab) . SLAC-REPRINT-1998-074, FERMILAB-PUB-98-026, Jan 1998. 11pp. Published in **Comput.Phys.Commun.110:142-148,1998**.

**Internet monitoring in the HEP community.**
Warren Matthews, Les Cottrell, (SLAC) , David Martin, (Fermilab) . SLAC-PUB-7961, Oct 1998. 8pp. Presented at International Conference on Computing in High-Energy Physics (CHEP 98), Chicago, IL, 31 Aug - 4 Sep 1998.

**Discussant remarks on session: Statistical aspects of measuring the internet.**
R.Les Cottrell, (SLAC) . SLAC-PUB-7873, Apr 1999. 4pp.
Proceedings of the 30th Symposium on the Interface, Minneapolis, MN, 13-16 May 1998.

**PingER: Internet performance monitoring: How no collisions make better physics.**
W. Matthews, L. Cottrell, (SLAC) . SLAC-PUB-8383, Feb 2000. 5pp.
Presented at International Conference on Computing in High Energy Physics and Nuclear Physics (CHEP 2000), Padova, Italy, 7-11 Feb 2000.

**1-800-CALL-H.E.P.: Experiences on a voice over IP test bed.**
W. Matthews, L. Cottrell, (SLAC) , R. Nitzan, (Energy Sci. Network) . SLAC-PUB-8384, Feb 2000. 5pp. - Presented at International Conference on Computing in High Energy Physics and Nuclear Physics (CHEP 2000), Padova, Italy, 7-11 Feb 2000.

**Internet end-to-end performance monitoring for the high-energy nuclear and particle physics community.**
Warren Matthews, Les Cottrell, (SLAC) . SLAC-PUB-8385, Feb 2000. 10pp.
Presented at Passive and Active Measurement Workshop (PAM 2000), Hamilton, New Zeland,
3-4 Mar 2000.

**International network connectivity and performance, the challenge from high-energy physics.**
Warren Matthews, Les Cottrell, Charles Granieri, (SLAC) . SLAC-PUB-8382, Mar 2000. 18pp.
Talk presented at the Internet2 Spring Meeting, Washington D.C., 27 Mar 2000.

**Measurement of CP violating asymmetries in $B^0$ decays to CP eigenstates.**
By BABAR Collaboration (Bernard Aubert *et al,* R.Les Cottrell, (SLAC).). SLAC-PUB-8777, BABAR-PUB-01-01, Feb 2001. 8pp.
Published in **Phys.Rev.Lett.86:2515-2522,2001**. e-Print: **hep-ex/0102030** TOPCITE = 100+

**The PingER project: Active internet performance monitoring for the HENP community.**
W. Matthews, L. Cottrell, (SLAC) . SLAC-REPRINT-2000-008, May 2000. 7pp.
Published in **IEEE Commun.Mag.38:130-136,2000**.

**Passive and active monitoring on a high performance research network.**
Warren Matthews, Les Cottrell, Davide Salomoni, (SLAC) . SLAC-PUB-8776, Feb 2001. 6pp.
Passive and Active Monitoring (PAM) 2001, Amsterdam, April 22 - 24.

**The BaBar detector.**
By BABAR Collaboration (Bernard Aubert *et al,* R.Les Cottrell, (SLAC).). SLAC-PUB-8569, BABAR-PUB-01-08, Apr 2001. 119pp. - Published in **Nucl. Instrum.Meth.A479:1-116,2002**. e-Print: **hep-ex/0105044** TOPCITE = 1000+

**Achieving high data throughput in research networks.**
Warren Matthews, Les Cottrell, (SLAC) . SLAC-PUB-8903, Sep 2001. 3pp.
Contributed to CHEP'01: Computing in High-Energy Physics and Nuclear, Beijing, China, 3-7 Sep 2001.

**Passive performance monitoring and traffic characteristics on the SLAC internet border.**
Connie Logg, Les Cottrell, (SLAC) . SLAC-PUB-9174, Sep 2001. 4pp.
To appear in the proceedings of CHEP'01: Computing in, High-Energy Physics and Nuclear, Beijing, China, 3-7 Sep 2001.

**Peer to peer computing for secure high performance data copying.**
Andrew Hanushevsky, Artem Trunov, Les Cottrell, (SLAC) . SLAC-PUB-8908, Sep 2001. 4pp.
Presented at CHEP'01: Computing in High-Energy Physics and Nuclear, Beijing, China, 3-7 Sep 2001.

**iGrid2002 demonstration: Bandwidth from the low lands.**
R. Les Cottrell, (SLAC) , Antony Antony, (NIKHEF, Amsterdam) , Connie Logg, Jiri Navratil, (SLAC) . SLAC-PUB-9560, Oct 2002. 8pp.
Presented at iGrid 2002, Amsterdam, the Netherlands, 23-26 Sep 2003.
Published in **Future Gener.Comput.Syst.19:825-837,2003**.

**Experiences and results from a new high performance network and application monitoring toolkit.**
R. Les Cottrell, Connie Logg, I-Heng Mei, (SLAC) . SLAC-PUB-9641, Apr 2003. 13pp.
Presented at Passive and Active Monitoring Workshop (PAM 2003), San Diego, California, 6-8 Apr 2003.

**Monitoring the digital divide.**
E. Canessa, H.A. Cerdeira, (ICTP, Trieste) , W. Matthews, R.L. Cottrell, (SLAC) . SLAC-PUB-9730, CHEP-2003-TUFT001, May 2003. 7pp.
Talk given at 2003 Conference for Computing in High-Energy and Nuclear Physics (CHEP 03), La Jolla, California, 24-28 Mar 2003.
*In the Proceedings of 2003 Conference for Computing in High-Energy and Nuclear Physics (CHEP 03), La Jolla, California, 24-28 Mar 2003, pp TUFT001*.
e-Print: **physics/0305016**

**pathChirp: Efficient available bandwidth estimation for network paths.**
Vinay J. Ribeiro, Rudolf H. Riedi, Richard G. Baraniuk, (Rice U.) , Jiri Navratil, Les Cottrell, (SLAC) . SLAC-PUB-9732, Apr 2003. 11pp.
Presented at Passive and Active Monitoring Workshop (PAM 2003), San Diego, California, 6-8 Apr 2003.

**Measuring end-to-end bandwidth with Iperf using Web100.**
Ajay Tirumala, (Illinois U., Urbana) , Les Cottrell, (SLAC) , Tom Dunigan, (Oak Ridge) . SLAC-PUB-9733, Apr 2003. 8pp.
Presented at Passive and Active Monitoring Workshop (PAM 2003), San Diego, California, 6-8 Apr 2003.

**Overview of IEPM-BW bandwidth testing of bulk data transfer.**
R. Les Cottrell, Connie Logg, (SLAC) . SLAC-PUB-9202, Jul 2003. 11pp.
Contributed to 15th Annual SC Conference on High Performance Networking and Computing: From Terabytes to Insights (SC 2002), Baltimore, Maryland, 16-22 Nov 2002.

**Measuring the digital divide with PingER.**
R. Les Cottrell, (SLAC) , Warren Matthews, (Georgia Tech) . SLAC-PUB-10186, Oct 2003. 4pp.

**PingER history and methodology.**
R.Les Cottrell, Connie Logg, Jerrod Williams, (SLAC) . SLAC-PUB-10187, Oct 2003. 4pp.
Invited talk at 2003 Round Table on Developing Countries Access to Scientific Knowledge, Trieste, Italy, 23-24 Oct 2003.

**Internet performance to Africa.**
R. Les Cottrell, (SLAC) , Enrique Canessa, (ICTP, Trieste) . SLAC-PUB-10188, Oct 2003. 4pp.
Invited talk at 2003 Round Table on Developing Countries Access to Scientific Knowledge, Trieste, Italy, 23-24 Oct 2003.

**Optimizing 10-Gigabit ethernet for networks of workstations, clusters, and grids: A Case study.**
Wu-chun Feng, Justin Hurwitz, (Los Alamos) , Harvey Newman, Sylvain Ravot, (Caltech) , R.Les Cottrell, (SLAC) , Olivier Martin, (CERN) , Fabrizio Coccetti, (SLAC) , Cheng Jin, Xiao-liang Wei, Steven Low, (Caltech) . SLAC-PUB-10198, Oct 2003. 13pp.
Presented at Supercomputing 2003 (SC 2003): Igniting Innovation, Phoenix, Arizona, 15-21 Nov 2003.

**Correlating internet performance changes and route changes to assist in troubleshooting from an end user perspective.**
Connie Logg, Jiri Navratil, Les Cottrell, (SLAC) . SLAC-PUB-10341, Mar 2004. 9pp.
Contributed to PAM 2004: Passive and Active Measurement Workshop, Antibes Juan-les-Pins, France, 19-20 Apr 2004. Published in Proceedings. Edited by C. Barkat and I. Pratt. Berlin, Germany, Springer-Verlag, 2004. pp. 289-297

**Evaluation of advanced TCP stacks on fast long distance production networks.**
Hadrien Bullot, (LPHE, Lausanne) , R.Les Cottrell, (SLAC) , Richard Hughes-Jones, (Manchester U.) . SLAC-PUB-10402, Apr 2004. 13pp.
Published in **J.Grid Comput.1:345-359,2003**.

**HSTCP-LP: A Protocol for low priority bulk data transfer in high speed high-RTT networks.**
Aleksandar Kuzmanovic, Edward W. Knightly, (Rice U.) , R.Les Cottrell, (SLAC) . SLAC-PUB-10456, May 2004. 2pp. Presented at workshop on Protocols for Fast Long Distance Networks, Chicago, IL February 16 - 17, 2004.

**Experiences in Traceroute and available bandwidth change analysis.**
Connie Logg, Les Cottrell, Jiri Navratil, (SLAC) . SLAC-PUB-10518, Jun 2004. 6pp.
Presented at SIGCOMM 2004 Workshops, Portland, Oregon, 30 Aug - 3 Sep 2004.

**Wide area network monitoring system for HEP experiments at Fermilab.**
Maxim Grigoriev, (Fermilab) , Les Cottrell, Connie Logg, (SLAC) . SLAC-PUB-10757, FERMILAB-CONF-04-476-CD, Dec 2004. 4pp. Prepared for Computing in High-Energy Physics (CHEP '04), Interlaken, Switzerland, 27 Sep - 1 Oct 2004.

**Fast TCP: From theory to experiments.**
C. Jin *et al,* R.Les Cottrell, (SLAC). SLAC-PUB-10869, Nov 2004. 12pp.

**Characterization and evaluation of TCP and UDP-based transport on real networks.**
R.Les Cottrell, Saad Ansari, Parakram Khandpur, Ruchi Gupta, (SLAC) , Richard Hughes-Jones, (Manchester U.) , Michael Chen, (Chelsio, Sunnyvale) , Larry McIntosh, Frank Leers, (Sun, San Diego) . SLAC-PUB-10996, Jan 2005. 7pp.
Presented at 3rd International Workshop on Protocols for Fast Long-distance Networks, Lyon, France, 3-4 Feb 2005.

**A Hierarchy of Network Performance Characteristics for Grid Applications and Services.** R.L.A. Cottrell (SLAC), Brian Lowencamp (College of William and Mary), Brian Tierney (Lawrence Berkeley National Lab), Richard Hughes-Jones (Manchester U.), Thilo Kielmann (Vrije Universiteit), Martin Swaney (University of Delaware). SLAC-PUB-10537, May 2004. 29pp.

**Real-Time IP Location: Experience with Worldwide Latency Measurement Infrastructures.**
R.L.A. Cottrell (SLAC). SLAC-PUB15944.

**Adaptive IP Geolocation.**
R.L.A. Cottrell (SLAC). SLAC-PUB-15955.

**Evaluation of IP Geolocation Algorithms on PingER and Planet-Lab Infrastructures.**
Fida Hussein (SLAC), R.L.A. Cottrell (SLAC), Qasim Lone (SLAC), Farrah Batool (NUST), Zafar Gilani (SLAC), Ajmal Hussain (NUST), Umar Kalim (SLAC). SLAC-PUB-15956. 2008. 9pp.

**Using NVMe Gen3 PCIe SSD Cards in High-Density Servers for High-performance Big Data Transfer Over Multiple Network Channels.**
Chin Fang, R.L.A. Cottrell. SLAC-TN-15-001. February 2015. 17pp.

**An Overview of High-Performance Parallel Big Data Transfers over Multiple Network Channels with Transport Layer Security (TLS) and TLS plus Perfect Forward Secrecy (PFS).**
Chin Fang, R.L.A. Cottrell. SLAC-TN-15-002. April 2015. 17pp.

**ABWE: A Practical Approach to Available Bandwidth Estimation.**
Jiri Navratil, Les Cottrell, SLAC-PUB-9622, published at PAM 2003.

**Analysis and clustering of PingER network data**

Anwesha Mal;A. Sai Sabitha;Abhay Bansal;Bebo White;Les Cottrell, *2016 6th International Conference - Cloud System and Big Data Engineering (Confluence)*, Noida, 2016, pp 268-273. - doi:10.1109/CONFLUENCE.2016.7508178

**Correlation analysis on real-time tab-delimited network monitoring data**

Aditya Pan; Jahin Majumdar;Abhay Bansal;Bebo White;Roger Leslie Anderton Cottrell, *2016 6th International Conference - Cloud System and Big Data Engineering (Confluence)*, Noida, 2016, pp 263-267. - doi:10.1109/CONFLUENCE.2016.7508178

**Application for the emulation of PingER on android devices.**

Pan, A. Bansal, B. White and R. Cottrell , *2016 6th International Conference - Cloud System and Big Data Engineering (Confluence)*, Noida, 2016, pp. 537-541. - doi:10.1109/CONFLUENCE.2016.7508178

**Interactions of Deuterons with Carbon Isotopes.**

PhD Thesis at Manchester University, England, 1967

**The Manchester Van-de-Graaf On-line Facility.**
R. L. A. Cottrell, J. C. Lisle, T. Daniels and S.Kossianides, DECUS Proceedings 1966, p71-83.

**Graphics executed on a PS Display.**
R. L. A. Cottrell, J. F. Minshall, IBM Technical Disclosure Bulletin, Vol. 26, No 4, September 1983

**Developing Countries and the Global Science Web.**
H. Cerdeira, E. Canessa, C. Fonda, R. L. Cottrell, CERN Courier, Dec 2003

**Monitoring the Digital Divide with PingER.**
R. Les Cottrell, Warren Matthews, Proceedings of the open round table: Developing Countries access to Scientific Knowledge: Quantifying the Digital Divide, ISBN 92-95003-22-5, SMR 1551, October 2003

**PingER History and Methodology.**
R. Les. Cottrell, Connie Logg and Jerrod Williams, Proceedings of the open round table: Developing Countries access to Scientific Knowledge: Quantifying the Digital Divide, ISBN 92-95003-22-5, SMR 1551, October 2003

**Internet Performance to Africa**.
R. Les Cottrell, Enrique Canessa, Proceedings of the open round table: Developing Countries access to Scientific Knowledge: Quantifying the Digital Divide, ISBN 92-95003-22-5, SMR 1551, October 2003

**Bringing the Internet to China.**
Les Cottrell, p 34, Symmetry volume 2, issue 09, November 2005

**Measurement of Large Transverse Momentum Positive Particles Produced at Medium Angles at the s**1/2 = 52.5-GeV.**

Cottrell et al.. Dec 1974. 4 pp., Published in Phys.Lett. 55B (1975) 341-344 - CERN/D.Ph.II/PHYS 74-46, DOI: 10.1016/0370-2693(75)90616-4

## Talks

Papers and talks