



full name	Robert John Briscoe
date of birth	5th March 1962
nationality	British
languages	native English, passable French & a little German
health, family	good health, happily married, children all left home
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Professional Reputation

- 3 IETF standardization groups have developed from my research: Low Latency Low Loss Scalable Throughput (L4S; 2016-...), Congestion Exposure (ConEx; 2010-16) & Pre-Congestion Notification (PCN; 2007-12);
- Launched and led (with Greg White) the working group that added Low Latency Support to DOCSIS (Data over Cable System Interface Spec.) based on my research (2017-19)
- Convenor and first Chair of the Security Expert Group of the ETSI Network Functions Virtualisation (NFV) Industry Specification Group (ISG);
- 70 invited talks in international fora over the last 20 years, including 21 keynotes and 6 expert panels.
- Initiated & directed CRN (Comms Research Network) - partnership between Cambridge Uni, MIT & industry;
- Incubated Qariba, a start-up based on my research (2000-3), then absorbed into BT's broadband service;
- Helped initiate various workshop series, e.g. EU FP7 Eiffel Future Internet support action, the ACM ReArch workshops, the ACM Capacity Sharing workshops;
- Reviewer for IEEE/ACM Trans. Networking, Wiley, ACM SIGCOMM Computer Comms Rvw, Royal Soc., etc.

Awards

- Special award for most patents filed (48) in BT's history (2013) (subsequently reached 50);
- Initiated the Trilogy Project (with Philip Eardley), which won the European Future Internet Award for its outstanding contribution to the Internet architecture and protocols (2011);
- BT's Gordon Radley Award for Best Author of Innovation (2007) & (2008)
- BT's Sir Alan Rudge Award for Innovation (Medal winner 2001)

Publications

Selected publications in the fields of Internet architecture, loosely coupled distributed systems, comms performance, virtualisation, traffic control, group security, protocol evolution and the economic structure of communications markets:

- **PI²: A Linearized AQM for both Classic and Scalable TCP**, De Schepper, K, Bondarenko, O, Tsang, I-J, Briscoe, B, In: *Proc. ACM CoNEXT 2016* pp.105-119 (December 2016)
- **Paced Chirping: Rapid flow start with very low queuing delay**, Joakim Misund and Bob Briscoe, in Proc. IEEE Global Internet Symposium (May 2019)
- **A Survey of Latency Reducing Techniques and their Merits**, Briscoe, B, Brunstrom, A, Petlund, A, Hayes, D, Ros, D, Tsang, I-J, Gjessing, S, Fairhurst, G, Griwodz, C, Welzl, M, *IEEE Comms Surveys & Tutorials* (2015)
- **Network Functions Virtualisation (NFV) Security Problem Statement**, Briscoe, B (Ed), *ETSI NFV ISG GS NFV-SEC 001 v1.1.1* (Oct 2014)
- **Pre-Congestion Notification - New QoS Support for Differentiated Services IP Networks**, Menth, M, Briscoe, B and Tsou, T, *IEEE Communications Magazine* **50**(3):94--103 (Mar 2012)
- **A Fairer, Faster Internet Protocol**, Briscoe, B, *IEEE Spectrum*, Dec 2008 pp38-43
- **Flow Rate Fairness: Dismantling a Religion**, Briscoe, B, *ACM CCR* **37**(2) 63--74 (Apr 2007)
- **Metcalfe's Law is Wrong**, Briscoe, B, Odlyzko, A & Tilly, B, *IEEE Spectrum* Jul 2006, 26-31
- **The Implications of Pervasive Computing on Network Design**, Briscoe, B, chapter In: *Intelligent Spaces*, Computer Communications and Networks Vol.XVIII Springer Verlag (2006)
- **Policing Congestion Response in an Internetwork using Re-feedback** Briscoe, B, Jacquet, A, Di Cairano-Gilfedder, C, Salvatori, A, Soppera, A and Koyabe, M, Proc. *ACM SIGCOMM'05, CCR* **35**(4) (2005)
- **TESLA: Multicast Source Authentication Transform Introduction**, Perrig, A, Canetti, R, Song, D, Tygar, D and Briscoe, B, *Internet Engineering Task Force (IETF) RFC 4082* (Jun 2005)
- **MARKS: Zero Side-Effect Multicast Key Management using Arbitrarily Revealed Key Sequences**, Briscoe, B, in Proc 1st Int'l Wkshp on Networked Group Comm'n (NGC'99) LNCS 1736:301--319 (Nov 1999)
- **Nark: Receiver-based Multicast Non-repudiation and Key Management**, Briscoe, B & Fairman, I, in *Proc 1st ACM Conf. on E-Commerce (EC'99)* (Nov 1999)

Career

Aug 2020 - ...
Independent Consultant

Defence against Patent Litigation

Aug'20- : Undermined patents targeting strategically important tech. (for the client and the Internet).

Sep 2019 - May 2020
Comcast Innovation Fund Award
Independent Consultant

Applied Research

Sep'19-May'20: Coordinated ad hoc project to complete the Low Latency Low Loss Scalable throughput (**L4S**) architecture. With Comcast award, hired open source developers to update **TCP** and **IP** (v4 & v6). 18 May 2020: **IETF** decision to proceed.

Sep 2017 - Jul 2019

CableLabs, Colorado, US
Consultant

Technology Transfer

Sep'17-Jul'19: Formation and leadership team of **Low Latency DOCSIS** working group: integration of Low Latency Low Loss Scalable throughput (**L4S**) into cable industry product plans. Ecosystem development with end-system and gaming developers, including adoption by Google, Microsoft, etc. IPR management. Standardization in DOCSIS 3.1 (Data over Cable Service Interface Spec) and update of the Internet Protocol (IP v4 & v6) at the **IETF**.

Jul 2015 - Jul 2017

Simula Research Lab,
Norway
Chief Research Scientist

Communications Systems

Dec'15- ...: Low Latency Low Loss Scalable throughput: collaborating to research, test, standardize and develop **L4S** to become the new default Internet service

Nov'15-Dec'15: Simula Research Strategy

Jul'15-Nov'15: **RITE**. Collaborative project on Reducing Internet Transport Latency.

Jul 2009 - May 2015

BT Technology & Svc Ops,
UK
Chief Researcher

Networks & Infrastructure Research

Jan'13-May'15: ETSI Network Functions Virtualisation (NFV). Helped create this industry specification group (ISG) and convened and chaired (Jan-Apr'13) the Security Expert Group.

Jan'13-May'15: Trilogy 2. Collaborative project on compute resource pooling. Led BT team.

Nov'12-May'15: RITE. Collaborative proj. on Reducing Internet Transport Latency. Led BT team.

Jan'12-May'15: IETF coordinator for BT Group.

Apr'11-May'15: Research on applying data centre tech to wide-area comms, esp. latency & virtualisation incl. TCO model

Jun'10-Nov'14: IETF Congestion Exposure (ConEx) w-g. Built over prior 4yrs.

Apr'08-Sep'09: Global Information Infrastructure Commission. Through BT's CTO, Matt Bross, the CxOs of many ICT corporations championed the creation of the IETF ConEx wg aiming to change the Internet Protocol, based on my research.

Jan'08-Dec'10: Trilogy. BT (P. Eardley & I) initiated and led this consortium to re-architect the Internet, which produced both Multipath TCP (MPTCP) and Congestion Exposure (ConEx).

Jan'08-Dec'10: MIT Communications Futures Programme Interconnection w-g; Co-chair.

Jun'06-Jul'12: IETF Pre-Congestion Notification (PCN) w-g: Initiated and led.

Jun'03-'06: Comms Research Network (CRN): Initiated and led this MIT-Cambridge academia-industry collaboration.

Jan'03-Mar'10: BT's Future Comms Architecture strategic research programme: Initiated & led, esp. economics & security.

May 2004 - Jun 2009

BT Group CTO, UK
Chief Researcher

Jan 2003 - Apr 2004

BTexact Technologies, UK
Chief Researcher

The Edge Lab

Dec 2001 - Dec 2003

BTexact Technology, UK
Research Lab Mgr (>20 staff)

Dec 2000 - Oct 2001

Singleton Tech Grp Leader

Jan 1998 - Nov 2000

Prof'l Tech grade

Mar '00 - '03: Qariba. Joint venture incubating a start-up for bandwidth mgm't products, which BT used in its broadband service.

Jan '00 - Mar '02: Technical Director, M3I. Initiated & led consortium; built & proved "Market Managed Multi-service Internet".

'97-'03: Internet quality-based charging. Research and advice both for BT Group Technical Strategy and BTUK Pricing Strategy.

'97-'03: Internet large-scale multicast applications research. Group security, incl. IETF's multicast stream authentication protocol and the basis of successful Venation start-up.

Distributed Systems Research

Dec 1994 - Jan 1998

BT Research, UK
Information Systems,
Senior Professional grade

'95-'99 BT's ANSA liaison: Int'l distributed systems research consortium (incl. secondment).

'95-'97: Web and e-commerce infrastructure research. Integration of Web & proprietary object models. Advisor to BT Group Technical Strategy. BT's IETF HTTP/1.1 w-g rep.

'95-'97: Technology and company evaluations co-ordination. Particularly message-bus & e-commerce back-end platforms.

Technical Services for BT R&D

Apr 1988 - Dec 1994

BT Development, UK
Technical Services,
Senior Professional grade

Apr 1992 - Dec 1994 Deputy Unit Manager (concurrent)

>100 staff offered technical services to BT's R&D.

Technical Computing Support Mgr & Design Office Manager (concurrent)

Apr '88-Dec'94: CAE system manager, eventually for whole of BT R&D. Migrated 100s of systems & networks to integrated IP-based multi-vendor system with partitioned security.

Apr '88-Dec'94: Led electronic product design team, then whole design office (dozen staff)

Special Project Design Engineer Mech'l, Electronic & Optical (p-t CAD sysadmin '87-'88)

Jul 1984 - Mar 1988

Professional grade

Further Education

Oct 1998 - Jun 2009

Oct 1981 - Jun 1984

Sep 1980 - Jun 1984

University College London, PhD (Computer Science, part-time)

Uni Cambridge, MA (Engineering)

BT Student (intro to comms business, technology & theory + degree sponsorship)

Personal Interests

* Morris dancer

* Historical reenactor (C15-16)

* My wife & I run a medium sized arable farm

* Secretary/trustee of Natural Energy Education charity (1988-2012)

Referees

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