



Flavio Bonomi

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About

Flavio Bonomi is Board Advisor to Lynx Software Technologies, a Silicon Valley company that provides safety, security, and real-time capable virtualization platforms for embedded and distributed systems. Prior to Lynx, he was the Founder and CEO/CTO at Nebbiolo Technologies, a startup delivering the first complete Fog/Edge Computing software platform for the Industrial Automation market. This platform vision is now being broadly adopted as the future of Industrial Internet of Things and for the transformation of the Industrial Floor infrastructure.

He spent 14 years at Cisco Systems and, as a Cisco Fellow and VP, he led the vision and technology initiatives for Cisco's forward looking work. Flavio identified key technologies for Cisco products and initiated the acquisition of four startups. Moreover, Flavio and his team recognized a need for deploying modern computing resources closer to the endpoints/edge by adopting recent innovations developed for the Cloud Computing domain. His envisioned solution would offer all the advantages of the Cloud married to the connectivity, security, real-time, and safety features required in Industrial, Energy, Transportation, and Oil & Gas IoT domains. Thus, "Fog Computing" was born.

Prior to Cisco, Flavio spent 4+ years in Bay Area startups and 10+ years at AT&T Bell Labs. During his career, Flavio directly contributed to fundamental technology inflections in the fields of Data Networking, Computing, and Industrial IoT, including:

- Industrial Automation & Transportation
- Fog, Edge, and Cloud Computing
- Software Defined Networking (SDN)
- Data Management, Big Data, & Analytics
- Switching and Storage Architectures
- Routing, Enterprise, & Data Center Architecture
- Traffic Management & Performance Analysis
- Congestion & Priority Control within and across Networks

A visionary entrepreneur and technologist, Flavio thrives at the boundary between applied research and advanced technology commercialization. He has published 100+ papers in technical journals and conference proceedings, a book chapter, and is co-inventor in 60+ USA and International Patents.

Flavio has PhD and MS degrees in Electrical Engineering from Cornell University and a Laurea Summa Cum Laude Electrical Engineering from University of Pavia, Italy.

Executive Experience

Board Advisor - Lynx Software Technologies - San Jose, CA - August '19 - present

Results:	Responsibilities:
Broadened & refreshed technology directions.	Flavio is leading the new technology vision to expand product scope beyond aerospace and defense into new markets including automotive, industrial, and real-time edge computing.

CEO & Founder - Nebbiolo Technologies - Milpitas, CA - February '15 - April '19, CTO - April '19 - May '20

Results:	Responsibilities:
Built a multi-national company from scratch and developed new platform for Industrial IoT edge software.	Flavio founded and led Nebbiolo Technologies as CEO over its first 4 years. Nebbiolo offers a complete Fog/Edge Computing software platform, comprised of a rich software stack (the fogOS), running on a variety of distributed Fog Nodes (industrial PCs), and a centralized system management (the fogSM). Nebbiolo is deploying its products for customers in Industrial IoT, Automotive Manufacturing, Oil & Gas, and Energy verticals.
	Flavio continued as the CTO at Nebbiolo as the chief evangelist for Fog/Edge Computing in Industrial IoT verticals at a time when this paradigm is being embraced as the fundamental complement to Cloud Computing.

Technical Advisor - Cloudleaf, Inc - Milpitas, CA - May '14 - present

Technical Advisor - PLAT.ONE - Bogliasco, Italy - April '14 - September '16 - PLAT.ONE was acquired by SAP in 2016

CTO & Founder - IoXWorks, Inc - Palo Alto, CA - December '13 - October '14

Results:	Responsibilities:
Consolidated technical vision into defining the missing links for IoT.	Flavio led the technology, incubation, and intellectual property advisory for IoXWorks which aimed at accelerating technical innovation, product development, and market adoption in the early stages of the Internet of Things.

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VP, Fellow - Head of Advanced Architecture & Research - Cisco Systems - San Jose, CA - June '07 - October '13

Results:

Led larger research and architecture team and identified strategic acquisitions as well as funded research to resolve key challenges in data networking.

Responsibilities:

As a leader of this dynamic organization, driving innovation and research activities across Cisco, Flavio shaped a number of innovations relating to mobility, security, communications acceleration, distributed computing, and data management. His leadership in this role led to Cisco acquiring two startups, Tigerme and Truviso, and a Cisco spin-off of PLUMGrid which was later acquired by VMWare.

This organization's effectiveness resulted from collaborating on development projects with Cisco BUs, engaging with external startups and larger industrial partners, funding academic research initiatives across the globe, and hosting University professors and students. Under Flavio's leadership, Cisco's Advanced Architecture and Research Organization became a world-class catalyst and contributor in several technological breakthroughs still resonating across our industry, including:

- **Industrial Internet of Things (IIoT):** Co-leader of the vision and technology direction for Cisco's Internet of Things initiative. This broad, Cisco-wide initiative encompassed major verticals, including Connected Vehicles and Transportation, Connected Cities, and Energy.
- **Fog and Edge Computing:** Flavio and his team are recognized as the creators of Fog Computing and the paradigm shift in 2010, now also referred to as Edge Computing.
- **Software Defined Networking (SDN):** Flavio and his team funded and directly contributed with a spin-off of PLUMGrid (acquired by VMWare) to the broad SDN movement, driven by Professor Nick McKeown at Stanford University
- **Cloud Computing:** Flavio and his team brought Cloud Computing to Cisco's attention and participated in early innovations in this area, in Collaboration with UC Berkeley's RAD Lab.
- **Data Management, Big Data and Analytics:** Flavio and his team contributed to many of the early Data Management and Big Data initiatives at Cisco, and injected the first Streaming Analytics technologies into Cisco, by driving two startup acquisitions in this area (Tigerme and Truviso).
- **Flexible Packet Parsing, Content Inspection Algorithms and Grammar Processing**
- **Traffic Management, TCP/IP Evolution, Video Transport**
- **Evolution of Switching and Routing Architectures and Performance Analysis**
- **Wireless and Mobility Research, with focus on the Networked Vehicle Initiative**
- **Definition and Standardization for Data Center Ethernet and Storage Technologies**
- **Security Innovation**

All these initiatives involved a strong and close partnership with related Business Units and have produced fundamental and lasting impact on a number of Cisco projects and products.

Senior Architect, Distinguished Engineer, Data Center Switching BU - Cisco Systems - San Jose, CA - May '04 - June '07

Results:

Led architecture team for flagship products & identified company acquisitions for key technology.

Responsibilities:

Flavio led a 20 person Architecture Team and was responsible for key directions in the evolution of the Catalyst 6500 Switch/Router System and the Nexus 7000, flagship platforms for Cisco Systems and market leaders among high-end Enterprise and Data Center Switching Systems. Flavio was one of the key drivers behind the acquisition of several technology companies (including Netsift and NeoPath) relevant to the future of Enterprise and Data Center.

Together with his team, Flavio was responsible for key contributions to the definition and performance analysis of the new NEXUS 7000 core architecture, a number of new line card ASICs, as well as the definition and standardization of many features of Data Center Ethernet, including BCN/QCN, Flexible Scheduling, and Fibre Channel over Ethernet.

Consulting Professor, Dept. of Electrical Engineering & Computer Science - Stanford University - September '06 - June '07

Results:

Multiple Patents

Responsibilities:

Flavio conducted joint research in the areas of Switching Architectures, Traffic Management, and Packet Forwarding Algorithms, in collaboration with Professors Balaji Prabhakar and Nick McKeown (Stanford), George Varghese (UC San Diego), Scott Shenker (UC Berkeley), and Michael Mitzenmacher (Harvard).

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Senior Architect, GSR/12K Development BU - Cisco Systems - San Jose, CA - September '99 - May '04

Results:

Developed technical evolution plans for the product line aimed at simplifying platform, scalability, and costs.

Responsibilities:

Architectural leadership position responsible for key directions in the evolution of the GSR 12000 Internet Router, the flagship platform for Cisco Systems, and market leader among high end routers with tens of thousand systems deployed. Key achievements:

- Led the positioning and evolution of the GSR router towards full Core and Multi-Service Edge capabilities required in the evolution toward a unified Packet Switched Network and contributed fundamental architecture elements to the GSR development.
- Architected the scaling of the GSR infrastructure capacity from 10Gbps per slot to 40Gbps and the line card scaling from 10Gbps to 20Gbps.
- System architecture for the 10Gbps core GSR line cards, the most widely deployed router cards at this speed.
- Conceived an evolutionary path towards a Multi-Chassis GSR product, known as "Teracore", using the GSR chassis as a line card chassis connected to a central, external Multi-Terabit Switching Fabric.

Chief Architect - StratumOne (acquired by Cisco Systems) - Santa Clara, CA - August '98 - September '99

Results:

Developed detailed evolution strategy for product line leading to company's acquisition by Cisco.

Responsibilities:

Technical leadership position responsible for the conception, positioning, feature definition, global architecture design, detailed behavioral design, and performance analysis of all new networking products of StratumOne, a leading semiconductor start-up, first to the market with OC-192 SONET framers for packet and ATM networks. Brought to the team key competence in networking and a strong execution team with networking experience. Key achievements:

- Conceived and architected an advanced Packet Processor plus Traffic Manager device, the "Traffic Master", capable of a full duplex 2.5Gbps throughput, packet and ATM cell full processing and traffic management, with hierarchical queuing and scheduling.
- Conceived and architected the "Ring Master" a Traffic Manager plus Ring Access Controller, supporting access to packet rings based on Cisco's DPT technology, capable of a full duplex 2.5Gbps throughput.

StratumOne was acquired by Cisco Systems in June 1999.

Senior Architect - CSI Zeitnet (acquired by CSI Cabletron) - Santa Clara, CA - September '95 - August '98

Results:

Developed detailed evolution strategy for product line leading to company's acquisition by Cabletron.

Responsibilities:

Technical leadership position responsible for the conception, positioning, feature definition, global architecture design, detailed behavioral design, and performance analysis of all new networking products of CSI Zeitnet. Such products include ATM network adapters, Frame to ATM uplinks, and ATM switches.

Zeitnet was acquired by Cabletron Systems in June 1996.

Distinguished Member of Technical Staff/MTS - ATM Platform Organization, Data Networking BU, Performance Analysis Department - AT&T Bell Labs - Red Bank, Middletown, Holmdel, NJ - December '84 - September '95

Results:

Developed core system architecture for flagship telecom switches.

Responsibilities:

Recognized expert in networking and switching system architectures, performance analysis/management/optimization, flexible policing and multicasting, congestion and priority control, flexible scheduling, traffic engineering, multi-processor systems architecture, capacity planning, and adaptive load balancing. Multiple patents as a result of this work.

Education

PhD & MS, Electrical Engineering - Cornell University

Minors in Mathematics and Operations Research. Thesis dealt with theory of Random Fields in the perspective of Information Theory.

Laurea Summa Cum Laude Electrical Engineering - University of Pavia, Pavia Italy

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Recognition & Honors	Top 50 Edge Computing Influencer, Data Economy, June 2018 Cisco Fellow (VP Level) - Cisco Systems 2008 Cisco Distinguished Engineer - Cisco Systems 2003 Cisco Pioneer Technology Award 2003 Cisco Pioneer Technology Award 2001 Distinguished Member of Technical Staff - AT&T Bell Laboratories 1994 Rotary Foundation Scholarship for graduate study in the USA Honorable discharge Italian Army Laurea Summa Cum Laude - University of Pavia, Italy Borromeo College Fellowship - University of Pavia, Italy
Inventions	60+ US and International Patents
Publications	Published 100+ papers in technical journals/conference proceedings/book chapter
Languages	Fluent in spoken and written English and Italian, knowledge of Spanish
Citizenship	USA and Italian Citizenship
Hobbies	Skiing, biking, soccer, yoga, cars, and music
References	Available upon request.