

# Torsten Blum

## DETAILED SKILL MATRIX

### Network Equipment (Layer 2&3)

|                                      |  |
|--------------------------------------|--|
| Cisco (CSR, 12xxx, 7xxx, 6xxx, etc.) |  |
| Juniper (T, MX, M Series)            |  |
| Foundry                              |  |
| Alcatel (7750)                       |  |
| Force10 (E-Series)                   |  |
| Huawei                               |  |
| Extreme                              |  |

### Network Technologies

|           |  |
|-----------|--|
| IPv4      |  |
| IPv6      |  |
| MPLS      |  |
| Multicast |  |
| NMS       |  |
| IPsec     |  |
| VoIP      |  |

### High Level Skills

|                                  |  |
|----------------------------------|--|
| Network Engineering & Design     |  |
| Network Troubleshooting          |  |
| Network Migration & Optimization |  |
| Network Operations               |  |
| Project Management               |  |
| Presentations                    |  |

### Routing Protocols

|       |  |
|-------|--|
| BGP   |  |
| OSPF  |  |
| IS-IS |  |
| PIM   |  |

### Transmission Technologies

|                             |  |
|-----------------------------|--|
| SONET / SDH                 |  |
| Ethernet (Optical & Copper) |  |
| xWDM                        |  |
| ATM                         |  |

### Various Networking Protocols

|      |  |
|------|--|
| DNS  |  |
| DHCP |  |
| SNMP |  |
| IGMP |  |
| LDAP |  |



**Operating Systems**



**Operating Systems**



**Office, Publishing, Markup**



## DETAILED WORK EXPERIENCE

**Period** August 2008 to present  
**Position** Architecture Specialist Global WAN  
**Department** Department MIT-NG2 / DC FW Ops 2  
**Company** MAN IT Services GmbH / T-Systems International GmbH

- Refine the existing global WAN architectural strategy
- Creation of WAN architectural documentation
- Improving network management systems
- Managing network related subprojects

**Period** March 2004 to November 2007  
**Position** Senior Network Engineer  
**Department** Internet Engineering Group  
**Company** Cable&Wireless Telecommunication Services GmbH

- Major rework and upgrade of Cable&Wireless' global internet backbone, AS1273, to capacities of  $\geq 40$  GBit/s
  - Proposed and initiated this project together with the Director of the Internet Engineering Group
  - Researched technology and commercial feasibility
  - Analyzed overall reliability of competing architectural approaches; included fibre paths, equipment as well as protocols on layers 2 & 3
  - Defined new architectural principles for the reworked network, publishing results as internal Wastepaper's
  - Presented the proposed new innovative network architecture to stakeholders
  - Created high level designs and documented approaches on deployment and transition
  - Evaluated new leading edge equipment, including: Force10 E600 and E1200, Juniper MX960 and T320/640, Cisco CRS/16 and CRS/8, Cisco 7613 and Alcatel 7750
  - Supplied technical requirements for the RFI and RFP process
  - Participated in scoring and analyzed technical RFI/RFP responses from vendors
  - Participated in Lab testing; personally tested Force10 E600/1200 and Juniper MX960
  - Created the detailed designs together with the Internet Engineering Group, including documentation preparing the roll-out
- New strategic services
  - Analyzed Cable&Wireless' existing network(s), the market and technology and providing feedback and suggestions on potential new strategic services and their service architecture
- GiS Framework to support network analysis and planning
  - Devised a Geo-information system allowing the combination of information on physical and logical network layout in order to provide a better understanding of the AS1273 network and improve the ability to make informed decisions
  - Created a proof of concept implementation using PostGIS (PostgreSQL with spatial extensions), Perl and PHP; supporting existing commercial and consumer GiS tools such as ArcGIS, Grass, Google Earth as well as the creation of PDF vector maps
  - Completed the first step of data gathering on physical land and seabed based fibre paths and node locations
- Expansion of AS1273 into Asia
  - Represented the AS1273 Internet Engineering Group in the Asia Expansion virtual project team, working together with colleagues in Asia and the UK
  - Provided technical guidance and network design based on commercial requirements in Asia

- Miscellaneous
  - Managed the Internet Engineering's Test Lab
  - Evaluated router and switch hardware as well as its software
  - Extended the existing AS1273 backbone capacity pending the completion of the a major network upgrade project
  - Participated in design reviews as a member of the AS1273 design authority
  - Cooperated closely with the OSS/BSS group to improve network monitoring
  - Provided last-line support to 2nd/3rd Level Operation teams, including advanced trouble shooting and direct contact with high profile customers
  - Initiated projects that improved intra- and inter-team technical work-group infrastructure (internal infrastructure, collaboration tools, documentation systems e.t.c.)

**Period** January 2001 - February 2004  
**Position** Senior Network Engineer  
**Department** Global Internet Engineering Group  
**Company** Cable&Wireless Deutschland GmbH

- Expansion of AS3561 in Europe
  - Participated in design activities, including new node designs throughout Europe
  - Integrated numerous small networks acquired by Cable&Wireless throughout Europe into AS3561 and AS1273
- Introduction of native inter-domain IP Multicast at Cable&Wireless' Tier 1 global backbone AS3561
  - Initiated and led the project
  - Created high and low level designs, including technical design documentation and management presentations
  - Held design reviews with engineering and operations groups located in Reston/Virginia US, Cary/North Carolina US, Tokyo/Japan, London/United Kingdom and Munich/Germany
  - Developed documentation specifically for the operations and provisioning teams
  - Organized Multicast training sessions for all groups involved
  - Coordinated peers and big customers to activate Multicast towards them
  - Steered and participated in the deployment of actual router configurations to all AS3561 routers in US, Europe and Asia/Pacific together with the 2nd and 3rd level operation teams in Cary/NC and Reston/VA
- Prepared deployment of native IPv6 in Cable&Wireless' Tier 1 backbone AS3561
  - Evangelized IPv6 inside Cable&Wireless
  - Created high and low level designs, addressing plans, address management rules
  - Created a testbed as a overlay network in order to create experience within engineering and operations as well as supporting the early adopters amongst the customer base
  - Provided IPv6 connectivity to the 53rd IETF Meeting in Minneapolis hosted by Cable&Wireless in 2002
- Devised a high level concept for a global IP address management system
  - Created the initial concept for a IP address management based on a modified "whois" database system as the back end and proposed front end tools, permitting direct interfacing with regional internet registries (RIPE, APNIC e.t.c.)

The system was implemented by a external consultant:  
<http://nethead.de/media/ipat/modrdb-presentation.pdf>
- Customer interface to AS3561 traffic engineering
  - Evangelized & designed traffic engineering interface based on BGP communities, enabling customers to control their route announcements on AS3561 boundaries to peers and within regions

- Miscellaneous
  - Established Lab facilities for the European Internet Engineering Group in order to improve hardware and software evaluation and testing
  - Participated in design reviews as a member of the AS3561 and AS1273 design authority
  - Closely cooperated with the OSS/BSS group to improve network monitoring and service
  - Last-line support to 3rd Level operations teams, including advanced trouble shooting and direct contact with most important customers

**Period** July 1999 - December 2000  
**Position** Senior Network Engineer  
**Department** Network Operation Services (NOS)  
**Company** Cable&Wireless ECRC GmbH

- Participated in AS1273 Upgrade/Expansion working group
  - Created network and node designs
  - Pre-configured network equipment before deployment
  - Coordinated on-site work for new installations, upgrades and moves
  - Integrated new sites into the live network
  - Performed upgrades on backbone circuits and peering as well as upstream connections
- Introduced native IP Multicast
  - Replaced old legacy mrouterd/MBone DVMRP tunnel infrastructure with native IP Multicast using PIM
  - Established Multicast connectivity to upstream and peering partners
  - Delivered support directly to Multicast customers
- Early stage IPv6 lab testing
  - Established the IPv6 lab
  - Explored IPv6 capabilities and opportunities
  - Followed the development of the IPv6 protocol suite
  - Participated in Cisco IPv6 beta program
- Introduced new network services and management capabilities
 

Includes concept, tools development in Perl as well as documentation

  - Established automatically generated route filters for BGP customers based on data from internet routing registries as one of the first carriers in Europe
  - Introduced an automatic system following configuration changes on routers and switches using a revision control system, permitting the tracking and tracing of all changes over a period of hours or even years
- Operated and expanded the INXS internet exchange
 

<http://www.inxs.de/>

  - Migrated the INXS and it's members to a new Cable&Wireless location in Munich
  - Upgraded the INXS switch capacities during the move
  - Introduced a Website for the INXS, including system installation, configuration as well as developing management tools on the website, both internal and external
- Miscellaneous
  - Provided network operations and customer support by participation in the day-time "NOC of the day" as well as 24/7 on-call "NOC of the week" rotation plans, responsible for the AS1273 internet backbone and the INXS internet exchange
  - Managed peering relationships (technical)
  - Participated in AS1273 Upgrade/Expansion working group

**Period** June 1999 - November 1995  
**Position** Network and Unix Systems Specialist  
**Department** Network Support  
**Company** TLK Computer GmbH & Co KG

- Designed and optimized customer networks
- Analyzed and configured routers and complex OSPF and BGP4 setups
- Managed vendor relationships on the technical level: managing feature requests, cases and software testing
- Evaluated new products and prepared the inclusion into the companies product portfolio
- Developed IP accounting and load statistics software and various network management tools

A short CV/Resume is available at  
<http://torstenb.vmunix.org/CV-English.pdf>

An up to date version of this document is always available at  
<http://torstenb.vmunix.org/Profile-English.pdf>