



# IPv6 Skills

Testimonial from an IPv6 Ready Logo certified  
Training and Consulting Company

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[www.sunny.ch](http://www.sunny.ch)



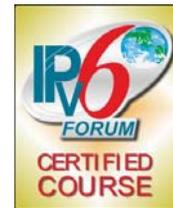
# Topics

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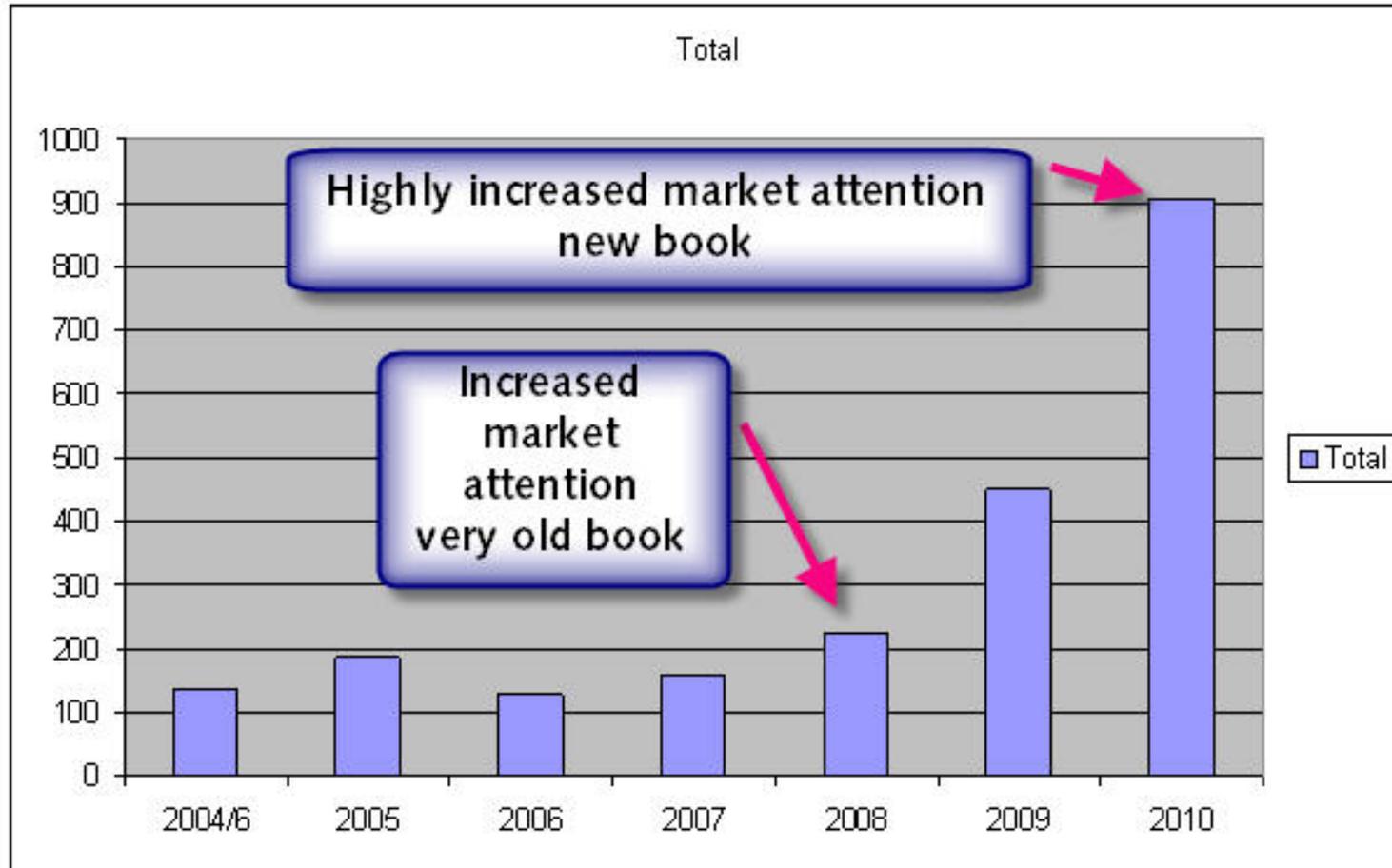
- Company background
- IPv6 Market
- Success factors for implementation
- Success factors for education
- Requirements for successful Certification Program

# Company Background

- IT Service and Education Company founded in 1995
- Network Analysis and TCP/IP since 1997
- Series of books:
  - TCP/IP Troubleshooting with Wiley, 1998, included chapter on IPv6
  - IPv6 Essentials, O'Reilly, 2001 and 2006 (2nd edition)
  - IPv6 German book, Sunny Edition, 2004 and 2009 (2nd)
- Training experience since 1992 (Microsoft, Novell, eDirectory)
- IPv6 Training, public and corporate since 2003
- Certified IPv6 ready in 2010



# IPv6 Book Sales – German book



# IPv6 Market Evolution

- Demand started to increase 2007
- High increase since 2008/2009
- More and more requests from CxO level
- New types of questions, the "should we really do it" type of question has almost disappeared
- The questions now asked are "how can we do this"
- Some organisations are simply "doing" it

# First Step in Education

- We have to make them understand how much and what there is to learn in the first place
- They don't even know enough about IPv4, and yet they think IPv6 is easy and they can just go about it with their IPv4 background
- We have to offer basic general training on IPv6 first, and then drill down into more technical depth where and as needed
- Differentiate between architects and specialists and customize courses as needed

**If you think  
education is expensive,  
try ignorance.**

# Success factors for implementation

They are also the success factors for education. We have to convey the following:

- Understand implications (in a networked perspective)
- Understand opportunities (new concepts, green field approach)
- Get rid of IPv4 mindset before you create concepts for IPv6
- Embrace the challenge (breed enthusiasts!)
- Use it as motivational aspect for organizations and IT people
- Don't choose quick and dirty approach!  
The next generations will have to live with it
- **Think big and think different!**

Think Big. Then Realize That's  
Not Big Enough

# Requirements for IPv6 Trainers

- A trainer needs to understand the topics mentioned on the previous slide
- Good technical understanding of IPv6 alone is not enough to convey the concepts and implications
- It requires
  - Understanding of organizational challenges and processes
  - Understanding of Change management issues
  - Experience in management and operation of complex networks
  - Experience with and understanding of TCP/IPv4

# Salt and Pepper in Education

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## Success factors in education:

IPv6 class of excellence is cooked with:

- Love
- Passion
  
- And hey, that is true for almost everything in life!
- And don't waste your time on whiners.

# The passion certification?

- So should we add a logo to certify for passion and love?
- How can we test on this?



# Experiences in complex networks

Experience from many years of troubleshooting complex network issues and performance problems:

- people operating different network and service components don't talk – so their networks don't talk either.....
- People operating Windows systems often don't know much about TCP/IP and network issues and correspondent tuning parameters – the servers and clients often run with default parameters
- Heavy network errors often go undetected for a long time and user complaints aren't dealt with (65% error rate on DNS servers, high packet loss rates on switches are dealt with by turning off Windows autotuning)
- The understanding of TCP/IP and IPv4 is often surprisingly low

# Requirements for Certification Programs

- Helpful for organizations and training industry, but only if
  - Carefully defined
  - Well implemented and supervised (not wishy washy)
  - High quality maintained over course of time
  - Not only focused on testing technical understanding
  - Make sure IPv6 knowledge is supported by a good understanding of TCP/IP, IPv4 and networking in general, as students may need some help with this before they can understand IPv6
- If organizations trust the certification it becomes helpful for good training providers
- Government or EU signature is always helpful in organizations

# CxO Wishes for Certification Program (cont)

- Must be standardized and accredited (such as ITIL as a good example)
- Certification must have different areas (architect, engineer) and levels (basic, indepth)
- Cost and Time must be in a healthy relation, so e.g.:
  - 2 day course plus test for basic
  - 5 day course and test for advanced
- Certification should be offered in public centers as well as inhouse
- Create a "Certified Community" for Identification with program, being able to quickly reach all certified members and as a ressource pool

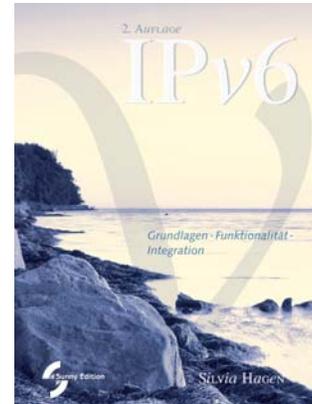
# Requirements for Certification (cont).

- Differentiate between architects and specialists as target audience
- Gold or "more advanced" doesn't necessarily mean "in more technical depth", this is only advanced for specialists
- For managers, strategists, architects "more advanced" means more interconnected, understanding dependencies and implications much more than technical details
- Example: An architect needs to understand implications of Neighbor Discovery very well, but he doesn't need to know how to configure the interval for the generation of a privacy addresses on a linux interface.

# Thank you for your attention!

## IPv6 Grundlagen, Funktionalität, Integration

von Silvia Hagen, Deutsch  
2. Auflage, Sunny Edition, 2009  
ISBN 978-3-9522942-2-2



## IPv6 Essentials

by Silvia Hagen, English  
2nd Edition, O'Reilly, May 2006  
ISBN 978-0-596-10058-2

