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ON THE DESIGN OF RELIABLE AND SCALABLE NETWORKED SYSTEMS

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus prof.dr. V. Subramaniam,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie van de Faculteit der Exacte Wetenschappen
op op vrijdag 3 juni 2016 om 11.45 uur in de aula van de universiteit,
De Boelelaan 1105

door

TOMÁŠ HRUBÝ

geboren te Stod, Tsjechoslowakije
promotoren: prof.dr. A.S. Tanenbaum
prof.dr.ir. H.J. Bos
It was a long journey to this final manuscript, which started some time in the summer of 2005. Although flattered by Herbert offering me a PhD position after finishing my masters with him, I declined it as I wanted to travel and see more of the world. And so did Herbert! In 2007 I went to try my luck at the University of Otago in New Zealand. A few months after that Herbert invited me to NICTA in Sydney, Australia, where he was enjoying the sun and his sabbatical. I could not decline this offer. This is where I discovered that there is more than Linux in this world, a whole new world of microkernels.

During the time in Sydney, I remember Herbert often joking about how great the weather was as well as the ocean and how awesome the food was there, while immediately asking me whether I would like to go back to Amsterdam. Really?? Back to the rain and croquettes? At first I thought he was just teasing me until he came back from a short trip back to Amsterdam, telling me that he talked to Andy, persuading him that he should hire me. I was not really sure whether he was still joking, but I got a call from Andy some time after that. The call did not go really well in the beginning as Skype failed many times and we had to use a regular phone. It was a great opportunity for Andy to make his point, that software is full of bugs, that computers should be easy to use and that he thinks that there are plenty open topics for a PhD thesis in this area. He just got a big ERC grant for tackling these issues. I do not know what impression I made during the call or Herbert’s words about me, but Andy made me an offer to be his PhD student. I was amazed, but at the same time, the sun and the ocean made saying yes right away pretty hard. I asked for some time to think and took off on a road trip to Western Australia. I am not sure what helped me to make up my mind, but endless driving in the beautiful
but desolated country was great for thinking about what future adventure might this
opportunity open. On November 19, 2008 I sent Andy this email from a roadside
internet cafe in the middle of nowhere between Darwin and Perth:

    Hi Andy,

    I am sorry for the late reply, travelling in Western Australia I have lim-
ited access to email. I would like to accept your offer. My internet access
is uncertain until I get back to Europe after xmas, but I try to check my
emails as often as possible.

A reply came a day later:

    Fantastic! Get back to me when you have proper Internet access.

I started on March 1, 2009 ...

I would like to thank Andy, for having trust in me and for giving me the oppor-
tunity and the honour for work for him. I would also like to thank Herbert, who
persisted in persuading me to take the PhD position in Amsterdam and who kept
pushing me forward as he is the best motivator I know. Working with Herbert means
that whatever you work on looks cool and he always finds a way to present anything
to be unexpectedly exciting. It was great to work with these two great researchers
and I heard from many and so often how lucky I am.

I think that one of the important reasons to accept Andy’s offer was that he was
building a whole new group as working in a team is always more fun. I would like
to thank my colleagues and friends from the team and the office for sharing the fun
experience with me. I would like to thank my fellow PhD students Erik van der
Kouwe, Raja Appuswamy, David van Moolenbroek, I would like to especially thank
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his comments and insights and above all for his enthusiasm and effort he put in
helping everyone around. Minix would not be what it is without the programmers
that worked hard on making Minix a modern system. Especially I would like to
thank Ben Gras who never hesitated to help with debugging or implementing a new
feature and not least, helping with translating English texts to Dutch for the final
version of this book.

I have spent so much time with my colleagues in Amsterdam that I did not have
enough time to spend with my wife Jana to whom I must thank so much for support-
ing me in this endeavor despite the long-distance relationship we had, which was
certainly not easy for her. She motivated me to keep working when it was the hard-
est. Without her support this book would not exist. In fact, we probably would not be
together if I did not take this position at VU as we met on a flight from Amsterdam
to Prague.
Last but not least, I would like to express my gratitude to all the members of
my PhD thesis committee, Willem de Bruijn, Jorrit Herder, Spyros Voulgaris, Andy
Pimentel and Robert Watson, for reading the thesis and their comments.

It was a long journey, but as I hoped at the beginning, it allowed me to meet
awesome people from all around the world, make connections and friends, see places
and gain invaluable experience. Thanks to all this we can continue our journey with
a great job in a fantastic place.

Tomáš Hrubý
Vancouver, British Columbia, June 2016