

---

# IEEE *Global* Communications MAGAZINE Newsletter

January 2005

## Greetings from the New Editor

By Nicolae Oaca, Editor

It is my great honor to serve as the new Editor of *IEEE Global Communications Newsletter* (GCN). Today, GCN is a normal presence in *IEEE Communications Magazine*, and due to the efforts of its previous Editors, Andrzej Jajszczyk, Byeong Gi Lee, Nelson L. S. da Fonseca, and Joan Garcia-Haro, as well as ComSoc members, it now has a solid foundation.

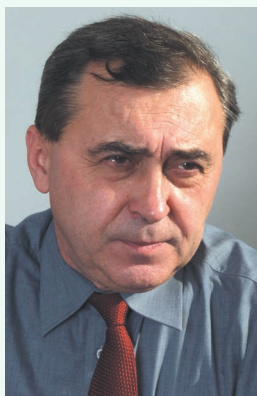
GCN is an important news medium for all ComSoc members to globally exchange news and information from all communications communities worldwide. It also helps to disseminate information on ComSoc policies and decisions to members, and to get feedback from them so that their opinions may be reflected in future policies and decisions.

As the new Editor of GCN, I would like to further develop it in order to be able to better fulfill these basic functions. Moreover, I plan to continue diversifying GCN articles so that regional local news gets balanced with regional office news and ComSoc officers' reports.

Specifically, GCN will continue to publish local correspondents' reports, with a particular focus on developing countries and the fight to reduce the "digital divide," but at the same time allocating space for Sister Societies. This plan has the effect of opening and expanding participation in GCN to all ComSoc members and officers, not limited to correspondents. Each ComSoc member will be able to find out from GCN what's new in each national society, regional office, and regional committee, determine new business and research opportunities, and also be able to provide feedback on his or her decisions. This type of open forum will encourage active participation of members in ComSoc activities and stimulate global collaboration among all members.

This arrangement enables GCN to present the activities and/or status of each conference, technical committee, and journal/transactions/magazine effectively, as each member in those boards/councils corresponds to a chair/director of a smaller-sized committee/board, a TC chair, or a journal/transactions/magazine editor.

The interest of all ComSoc members is an essential issue. Especially, timely contributions from all GCN correspondents, regional offices, regional committee chairs, and members who are supposed to provide reports and articles are crucial. I



Nicolae Oaca

hope all members will actively participate in continuously developing GCN.

All this requires more correspondents, especially from uncovered regions and countries: Africa, South America (except Brazil), Asia, and others. I invite you to help diversify and increase our correspondents base. We also need the continuous support of all traditional correspondents, on whose collaboration we are relying.

I welcome any comments or other ideas that would advance GCN. I appreciate your support in advance.

Finally, I would like to introduce the Romanian Associate Editors team: Professor Octavian Fratu of University Politehnica, Bucharest, and Associate Professor Simona Halunga of University Politehnica, Bucharest. Professor Fratu and Associate Professor Halunga will share the editorial work with me, taking responsibility for collecting and editing GCN articles.

Please support them by promptly responding whenever you are requested to contribute articles.

All the best for the New Year! A happy New Year!

Dr. Nicolae Oaca

## CALL FOR PAPERS

*Global Communications Newsletter* seeks original papers of general interest in the field of communications and related areas.

GCN topics include, but are not limited to:

- National and regional developments in communications technologies, services, markets, and standards
- Pilot experiences in communications
- Communications research and development reports
- Reports on national and international large-scale projects (e.g., NSF, EU IST)
- Telecommunications convergence issues, regulation, standardization, and other legal issues (EU admission of Central European countries, etc.)
- The digital divide and its reduction
- Information and knowledge society
- New applications of communications in politics, health, education, commerce, security and defense, surveillance, agriculture, standard of life, handicapped people care, industry,

---

## *Distinguished Lecturer Tour in Australia*

*Speaker: Andrzej Jajszczyk, AGH University of Science and Technology, Poland*

*Brisbane, Adelaide, Perth, 14–24 August 2004*

The tour was initiated by an email to me from Jenny Long, Administration/Service Executive, IEEE Asia Pacific Operations Centre, Singapore, in February 2004. The email expressed the interest of several Australian ComSoc Chapters in hosting me. Finally, after exchanges of emails between me and Jenny Long, Fanny Su, and Serena Dhing, it was agreed that the tour would be hosted by three local Chapters from Queensland, South Australia, and Western Australia. It was a great trip and I enjoyed it very much.

I arrived in Brisbane on August 16 and went to the Chifley on George Hotel. After my arrival I was contacted by Prof. Sridha Sridharan of Queensland University of Technology. Next day, along with adjusting to the new time zone, I enjoyed walking in the center of Brisbane, also visiting the beautiful City Botanic Gardens encircling the University. But I was most impressed by the rich collections of art in local galleries. Queensland Art Gallery hosted two splendid exhibitions of Aboriginal art. The first of them presented works of Clifford Possum Tjapaltjarri, probably the best known representative of the so-called dot painting style. The second exhibition, “Blak Insights: Contemporary Indigenous Art from the Queensland Art Gallery Collection,” contained a variety of items, including traditional bark paintings, performance sculptures, and contemporary photography as well as film and video works from different parts of Australia. I also visited an interesting presentation of modern art held at QUT Art Museum located in the campus. A small exhibition entitled “Savvy: New Australian Art” showed works of six local artists.

My talk was held in a Queensland University of Technology auditorium on August 18. I was picked up from my hotel by Prof. Sridha Sridharan. The lecture, entitled “Next-Generation Networking: Solutions and Challenges,” started at 10:30 a.m. The audience of 32 participants (17 IEEE members and 15 non-members) included students and faculty members, but also some engineers representing telecommunications operators. The talk took exactly one hour and 15 minutes, followed by about 15 minutes of questions and answers. Everything was very well organized. Hard copies of the slides were distributed among the participants. The discussion continued during lunch with people from Prof. Sridharan’s group.

In Adelaide, on 19 August, 2004, I was picked up from the airport by Prof. Arek Dadej and checked into the Stamford Plaza Hotel located in the center of the city. I feel a special attachment to this lovely city since I spent a year there on my sabbatical with the University of Adelaide in 1989–1990. Adelaide is a masterpiece of urban planning drawn in 1836 by Colonel William Light in the middle of nowhere. Surrounded by the bush, he sketched the business and residential areas with their clear grid of wide streets and squares, the famous Parklands, Botanic Gardens, the University, and sport facilities. His vision is now a reality serving people of South Australia and numerous visitors.

On the first night I was invited to dine with Prof. Arek Dadej, Dr. Steven Gordon, and Dr. Aruna Jayasuriya. We discussed ComSoc Chapter activities and lots of other issues. Australian cuisine, including fabulous kangaroo steak supplemented with excellent Cabernet Sauvignon from McLaren Vale, further enhanced the great atmosphere. Next day I went with Prof. Dadej to the Mawson Lakes Campus of the University of South Australia. I visited several communications laboratories at the university. My talk, also on next-generation optical networking, began at 1:00 pm and took one hour and 15 minutes, followed by questions and answers. The talk was attended by about 75 people, including 15 faculty members

from the Universities of South Australia and Adelaide, 30 postgraduate students, 15 researchers from the Defence Science and Technology Organisation, and 15 employees of other research institutions and network operators. Hard copies of the slides were distributed among the participants. After the “official part” of the lecture I met with faculty members and students to discuss a variety of research issues. I also presented ComSoc activities in the area of publications. This informal meeting took about an hour. In the evening I had a lovely supper at Prof. Dadej’s home. The next day, I went to Adelaide Hills, visiting Cleland Wildlife Park to watch koalas, emus, echidnas, wombats, dingoes, wallabies, and kangaroos. In fact, I felt a bit sorry there for my first supper in Adelaide. Along with colorful birds, like Adelaide and Crimson Rosellas, Rainbow Lorikeets, and Superb Blue Wrens, I also saw some less pleasant Australian species, including snakes and spiders.

I arrived in Perth on August 22. I stayed in the Ibis Hotel in the center of the city. Perth, the capital of Western Australia, is beautifully located on the banks of Swan River, close to the Pacific Ocean. I began my sightseeing tour with Kings Park and its gorgeous views of the city center. The park contains many local trees and shrubs, like the tuart tree, paperbark gum, peppermint tree, and lemon-scented gum, inhabited by beautiful birds, such as twenty-eight parrots and wattlebirds. The next stop was Fremantle, a port serving Perth but also a charming city with its 19th century buildings housing numerous cafés and restaurants. I visited the Maritime Museum, exhibiting the reconstructed stern of the Dutch ship Batavia wrecked in 1629. Its story is one of the most touching sea travel reports I’ve ever read. The new, spectacular building of the museum contains, among other interesting items, the famous Australia II yacht that won the America’s Cup.

The next day, in the morning I spent some time in the Art Gallery of Western Australia. The permanent collection contains such early “white” Australian masterpieces as “Down on His Luck” by Frederic McCubbin, as well as paintings of well-known modern Australian artists, such as Kathleen O’Connor, Robert Juniper, Arthur Streeton, and Tom Roberts. There are also works by renowned foreign artists, including sculpture by Henry Moore and Niki de Saint Phalle.

At noon, I was picked up by Prof. Daryoush Habibi. We had lunch together at an Italian restaurant overlooking the ocean, followed by a visit to the Joondalup Campus of Edith Cowan University. The campus, located in a beautiful green area, is built mainly of local yellowish sandstone, perfectly matching the environment. The notable exceptions were the spectacular Campus West Building, resembling, in my opinion, the wooden architecture of Far East Asia or Oceania, and the environmentally sound Science and Health Building. The lecture was held in the Auditorium of Western Power Corporation Headquarters in Perth. It commenced at 6:00 pm. The lecture, which took one hour and concerned current developments in optical networks, was attended by 46 people, 16 people from industry, six university academics, 17 postgraduate (Master’s and Ph.D.) students, and seven undergraduate students. The talk was followed by an interesting discussion that continued at supper in a charming Thai-style restaurant, attended by Prof. Habibi and four other Chapter members.

After finishing my “official” DLT duties, I had a wonderful opportunity to privately visit some remarkable places in Western Australia, including the famous Karri Forests and Margaret River Caves in the South, and spectacular wildflowers and the famed “Rabbit Proof Fence” in the North.

# Shareholder Value and Security Investments

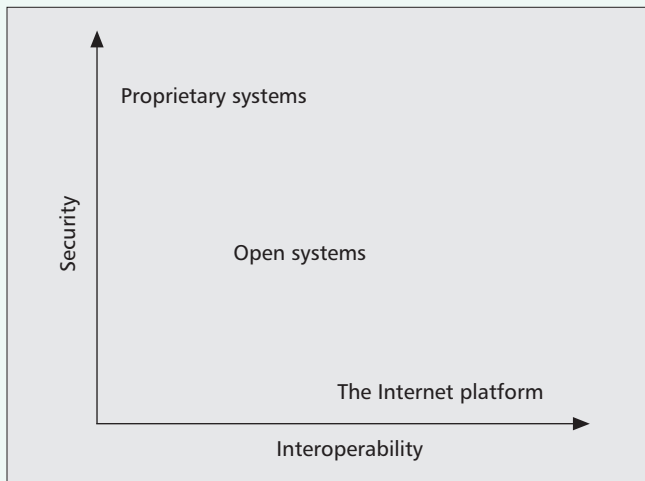
Excerpt from Invited Talk, IEEE ISCC 2004, Alexandria, Egypt

Christer Magnusson

Department of Computer and Systems Sciences,  
Stockholm University and Royal Institute of Technology, Kista, Sweden

A change during the last years is the shift in technology; mainframe computer systems that were previously homogenous units with proprietary communications protocols (such as SNA/SNI and DECnet) are now integrated with or replaced by UNIX- and Windows-based systems at offices, customers, suppliers, homes, and vehicles, connected through the open, interoperable protocol suite TCP/IP.

The migration from proprietary systems to the interoperable Internet platform has had at least one drawback: security (Fig. 1).



■ Figure 1. A nonsecure migration.

Dividend and price rise of companies' shares are the primary interests of shareholders, and a precondition for delivering shareholder value for most businesses today is an interoperable Internet platform. Accordingly, malfunctions of companies' IT operations can directly spoil otherwise prosperous companies' cash flow statements and balance sheets, and thus reduce their shareholders' risk capital substantially. For example, business interruptions due to IT perils could reduce the income stream and cause extra expenses, which will decrease the operating profit and the cash flow.

## Shareholder Value

Private companies have only one mission: deliver the highest possible value to their shareholders; the higher dividend stream and price rise of its shares a company can produce to its shareholders in the future, the more attractive the company will be for investors. This is true for all companies. However, publicly traded companies are especially vulnerable to incidents that may have an effect on the dividend stream. This is a fact that daily can be observed at the stock markets. For many companies today, growth is closely linked to their investments in and utilization of IT. Consequently, serious IT failures can, besides spoiling the ambition of growth, also reduce a company's possibilities to fulfill its obligations to its capital providers (equity owners and lenders). If the company cannot fulfill their owners' demands, the "forces" of the stock market will probably

reduce the value of the company; value is destroyed. Clearly, there is a need to have a financial perspective on IT security perils and IT security investments.

## DCF Analysis

There are three fundamental parts of the discounted cash flow (DCF) theory:

- Cash flow generation
- Future orientation
- The risk associated with future cash flows [1]

Usually, companies mainly generate cash flow through their operating activities. A positive cash flow can be used as an extra source of capital for core business or be invested in, for example, bonds or equities, and — hopefully — generate a profit. This source of capital is called free cash flow (FCF). A company's FCF is given by calculating its net operating profit, minus adjusted taxes, minus net investment [2, p 174].

The FCF is a cornerstone in the valuation of companies. Together with the present value of after-tax nonoperating cash flow, the FCF gives the total value of a company [2].

Usually a DCF analysis consists of three steps (Fig. 2). First, the FCF and the weighted capital cost<sup>1</sup> (WACC) for the 10 years to come are calculated. Second, the perpetual value of the company is calculated. This continuing value of the company is based on the estimated FCF of the company in year 11. That value is divided with the WACC minus the prediction of the perpetuity growth rate (-g) in the net operating profit less adjusted taxes (NOPLAT).

Finally, the amount for the first 10 years is added to the continuing value. The sum is discounted back to the present value. This value is the discounted value of the company. If the discounted total value is divided with the outstanding shares of the company, the outcome of the calculation is the "correct" price of the company's shares.

$$\frac{FCF_{1-10} / WACC_{1-10}}{\text{Year 1-10}} + \frac{FCF_{11} / WACC - g}{\text{Year 11}} = \text{The company's value (discounted to present value)}$$

■ Figure 2. The value formula.

From the above can be concluded that there are some fundamental key figures in a DCF valuation that determine the value of a company. These are:

- The progress of the FCF (especially the NOPLAT)
- The return on invested capital relative to the cost of capital (the WACC)
- The estimation of perpetual growth of the NOPLAT

Today, in most companies, IT is a prerequisite to operate a business. Consequently, IT incidents will (almost) undoubtedly reflect the FCF and the return on capital. Moreover, the perpetual growth of a company may be downward adjusted. As a result, the total value of a company will be reduced.

<sup>1</sup> The company's weighted cost of capital from shareholders and lenders.

(Continued on next page)

# Editor's Message/Call for Papers

(Cont'd from page 1)

tourism, space, transportation and navigation, environment, sustained development, globalization, and other areas

- Trends and thematic priorities in research
- Market trends
- Historical perspectives in communications
- Education in communications
- Reports on key workshops or conferences
- ComSoc Chapter activities

Authors willing to present research results in communications are encouraged to avoid exhaustive or theoretical descriptions and focus on the general interest of their work. In that case, they should cite the sources (project URLs, journals, conference proceedings) where detailed descriptions can be found.

Authors willing to submit reports on workshops or conferences are especially encouraged to do so for IEEE-backed ones, although *GCN* is open to disseminate the conclusions of any event in the field of communications.

Please check previous issues of IEEE Communications Magazine or contact nicolae\_oaca@yahoo.com, octavian.fratu@elcom.pub.ro, or simona.halunga@elcom.pub.ro with any questions about the suitability of a paper.

Prospective authors should prepare their manuscripts in plain ASCII or MS Word format, with a maximum length of 1200 words, and send them to either of the submission addresses below. MS Word files may have pictures and tables embedded (subtract 200 words for each figure or table). Alternatively, provide these as separate files using any standard coding. Only send screen dumps if strictly necessary, since they will be subjected to a minimum resolution of 300 dpi in the final version.

Submission addresses:

Dr. Nicolae Oaca (Editor): nicolae\_oaca@yahoo.com

Dr. Octavian Fratu (Associate Editor): octavian.fratu@elcom.pub.ro

Dr. Simona Halunga (Associate Editor): simona.halunga@elcom.pub.ro

## SHAREHOLDER VALUE/(cont'd from page 3)

### Security Investments

Most traditional investments are based on investment criteria such as the book rate of return, payback period, internal rate of return, or net present value. However, currently there are no commonly used criteria for IT security investments. This may lead to a situation where IT security investments have difficulties in competing with traditional investments, which generally can be assessed more easily. In the long run, necessary and valuable IT security investments may not be implemented due to the misconception that they are not profitable. This threatens shareholder value.

The challenge is to apply a value-based management (VBM) perspective on IT risks and IT security investments [3]. Let us consider an investment in a security product by applying a financial VBM perspective to the investment:

1. Identify loss exposures in the business to be protected by the security measures.

2. Start from the total risk and estimate maximum loss (EML) at one damage occasion, considering existing security measures (logical, physical, administrative, and organizational), but not considering the effects of the suggested security investment.

3. Estimate the "probable" annual loss expectancy (ALE) considering existing security measures, but not considering the effects of the suggested security investment.

4. Estimate the annual loss reduction (ALR) in the business as a consequence of the security measures.

5. Make a net present value (NPV) calculation.

The formula for the risk-management-based NPV calculation could be expressed as:<sup>2</sup>  $NPV_{Sec.inv} = PV(ALR) - PV(Inv\ cost + operative\ expenses)$ .

### References

- [1] I. Cornelius *et al.*, *Shareholder Value*, FT Financial Publishing, Pearson Prof'l. Ltd, London, U.K., 1997, p 82.
- [2] T. Copeland *et al.*, *Valuation: Measuring and Managing the Value of Companies*, 2nd ed., McKinsey & Co., Inc., Wiley, 1995, p 176.
- [3] C. Magnusson, "Hedging Shareholder Value in an IT-Dependent Business Society: The Framework BRITS," Ph.D. dissertation, Dept. Comp. and Sys. Sci., Stockholm Univ., rep. series 99-015, 1999.

<sup>2</sup> Discounted to present value.

## IEEE Global Communications Magazine Newsletter

NICOLAE OACA  
Editor

Calea Mosilor No. 241  
Bl. 47, Sc. 3, Ap. 71  
Sector 2, Bucharest 020874  
Romania  
Tel: 00 40 766 505 784  
Fax: 00 40 21 210 12 24  
E-mail: nicolae\_oaca@yahoo.com  
gc@comsoc.org

OCTAVIAN FRATU AND SIMONA HALUNGA, Associate Editors  
octavian.fratu@elcom.pub.ro, simona.halunga@elcom.pub.ro  
Email:

JACOB BAAL-SCHEM, Chapters Corner Editor

### Regional Correspondents

HOSSAN AFIKI, France • BORHANUDIN MOHD ALI, MALAYSIA  
JACOB BAAL-SCHEM, Israel • DINKO BEGUSIC, Croatia  
OMAR CHERKAoui, CANADA • PAULO DE SOUSA, European Union  
VOULA GEORGOPOULOS, Greece • SILVIA GIORDANO, Switzerland  
RAM G. GUPTA, India • CARLOS HIRSCH, Mexico  
LIANG XIONG JIAN, China • HENRICH S. LANTSBERG, RUSSIA  
ARTUR LASON, Poland • JOSÉ MARIA MALGOSA-SANAHUJA, Spain  
NICOLAE OACA, ROMANIA • IRADJ OUYEYSI, AUSTRALIA  
ALGIRDAS PAKSTAS, UK • GIANCARLO PIRANI, Italy  
K. R. SUBRAMANIAN, Singapore • HELIO WALDMAN, Brazil



A publication of the  
IEEE Communications Society