CARLETON UNIVERSITY

Department of Systems and Computer Engineering

SYSC4700 Telecommunications Engineering Winter 2006

PROJECT

Strategy for a National Infotainment Service Provider for the Next 20 Years

Due date: Submit 3 copies of the report in the assignment box by 4:00 pm, Monday, April 3rd.

I. Background

You are on a team of engineers and planners in an emerging service provider that aims to provide telecommunications, information, internet, and entertainment ("Infotainment") services to business and private customers in Canada, perhaps in partnership with a similar company in the USA. At present, your company does not provide all of these services. However it aims to offer them, so that within say, 20 years, it will compete aggressively with incumbent telcos and mobile service providers (like Bell Canada and Telus), cable companies (like Rogers and Shaw), and entertainment organizations (like CBC and CTV). For example, your company might be Microsoft, or Google, an oil/gas pipeline company, or a currently "unknown" startup company.

Your job is to plan and write a convincing technical report on the strategy your company should follow to achieve this goal, including the choice and acquisition of appropriate telecommunications technologies.

II. Requirements

You will work in a group of <u>three or four</u> students to do a study, whose outcome is a written report. The report will include the following topics, in separate sections:

1. A description of the prospective infotainment applications and services that you expect to offer, and that will be of value to your customers. Think beyond current traditional telecommunications and entertainment services, to what will be possible and desirable in 20 years from now¹.

¹ e.g. Imagine what you would have foreseen, (and how things have since turned out) if you had been given this assignment 20 years ago!

- 2. Estimates of traffic volumes, and computing, switching and routing, and database storage facilities you will need.
- 3. An informed discussion of the technology elements you propose to use, such as;
 - backbone optical fiber transport
 - packet switching and signalling facilities
 - access network: copper wires, cable, radio,...?
 - network management technology
 - etc.
 - and, how to acquire them (buy, build, lease from incumbent service providers, ...)
- 4. Possible risks in the investment.

III. Things to Consider

- Will your network be IP-based?
- What network architecture do you recommend?
- How will QoS (quality of service) be maintained?
- Will it use Voice over IP (VOIP)?
- Will most (or all?) customer terminals be mobile (wireless)? What role will be played by evolving cellular radio, wireless LAN (WiFi), and fixed cellular broadband access (WiMax) technologies?
- What bit rates will be needed by different types of customers, and how will these bit rates be made available to them?
- What about communication to and from millions of sensor devices (IP version 6 provides the capability of addressing literally millions of devices for every square meter of the earth's surface).
- What about impacts on health, education, and other aspects of society? what about privacy and security concerns?

IV. The Report

It is your responsibility to find a group of two or three other students to work with on your project. Each group will write <u>one report</u>, and submit <u>three copies of it</u>. It is up to your group to organize the work and allocate tasks to group members. Your group output will be a report which addresses the above issues. Include references (papers, books, internet, etc.), with enough information that they can be looked up by readers.

Do not copy from other sources or use their ideas, unless they are acknowledged and referenced. Violating this rule amounts to plagiarism, which is a serious instructional offence (see, "instructional offences" in the undergraduate calendar, and <u>www.plagiarism.org/articles.html</u> for definitions and examples of plagiarism). Reference to "other sources" also includes any overlap of your own work in other courses, such as fourth year projects, for example.

The report itself should be no more than 10-15 pages of double-spaced text, plus figures. Your marks will be based on the correct knowledge and persuasiveness revealed in your report, its organization, coherence and clarity, and use of references. All members of each team will get the same mark. As a guide, the score sheet that will be used by markers (TAs and Professor Yanikomeroglu) is appended.

SYSC 4700 PROJECT MARKING FORM Student names and numbers:

Marked by: Overall comments, if any:

Completed project:	
Clarity	
Language, grammar	

Specifics:

	Mark	Out of:	Comments if any
Overall organization and clarity of the report, including presentation format		Max. 6	
Completeness and persuasiveness in answering requirements posed in project description		Max. 10	
Correctness of telecommunications concepts displayed in the report		Max. 10	
Use of references		Max. 4	
Total		Max. 30	