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Datasheet for the decision of 17 July 2018

Case Number: T 0988/12 - 3.5.01

Application Number: 09006035.1

Publication Number: 2113872

IPC: G06Q10/00

Language of the proceedings: EN

Title of invention:
Communications network deployment simulator

Applicant:
Accenture Global Services Limited

Headword:
Network deployment simulator / ACCENTURE

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - simulating scanarios for a 4G broadband service (no - inadequately defined technical purpose)

Decisions cited:
T 1227/05, T 0641/00, T 0049/99

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Case Number: T 0988/12 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 17 July 2018

Appellant: (Applicant)	Accenture Global Services Limited 3 Grand Canal Plaza Grand Canal Street Upper Dublin 4 (IE)
Representative:	Müller-Boré & Partner Patentanwälte PartG mbB Friedenheimer Brücke 21 80639 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 16 December 2011 refusing European patent application No. 09006035.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	W. Chandler
Members:	A. Wahrenberg
	P. Schmitz

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse the European patent application 09006035.1 for lack of inventive step (Article 56 EPC).

II. The examining division found that the invention as claimed in the main and two auxiliary requests was essentially a business process. The technical character of the invention was said to reside in the technical implementation of the business process on a "commonplace data processing system". The examining division considered that the implementation would have been obvious to the skilled person and concluded that the claimed subject-matter did not involve an inventive step.

III. The applicant (appellant) appealed and requested that the decision to refuse the application be set aside and that the case be remitted to the examining division with an order to grant a patent on the basis of the main request or one of four auxiliary requests. All requests were submitted with the statement setting out the grounds of appeal, but the main and first two auxiliary requests were identical to the requests before the examining division.

IV. The Board set out its preliminary view in a communication accompanying a summons to oral proceedings. The Board saw the invention as an obvious computer implementation of a non-technical simulation. As no search had been carried out, the case would have to be remitted to the examining division if the Board was to conclude that the invention would not have been

obvious starting from the commonplace data processing system.

V. In a reply dated 15 May 2018, the appellant filed a new main request and two auxiliary requests to replace the requests on file if the new requests were admitted into the proceedings.

VI. The Board held oral proceedings. The requests filed on 15 May 2018 were admitted into the appeal proceedings. The appellant's final request was that the decision under appeal be set aside and that the case be remitted to the department of first instance to carry out a search and grant a patent on the basis of the main request or, alternatively, the first or second auxiliary request, all filed on 15 May 2018.

VII. Claim 1 of the main request reads:

A computer readable storage medium including instructions executed by a computer system (600) to perform a method for simulating and analyzing one or more scenarios for a 4G broadband service to be deployed, by which information is provided over a network, the method comprising:

receiving (501) a plurality of different sets of business and technology changeable parameters describing the 4G broadband service to be deployed, said technology changeable parameters being associated with technology data for the communications network service;

receiving existing service parameters describing existing network infrastructure and services;

simulating (504) the deployment of the 4G broadband service, each simulation based on a different set of the received sets of business and technology changeable

parameters, the received existing service parameters, a base case model, a network cost model and a bandwidth model,

wherein the base case model includes model parameters for a cost of maintaining cell sites, a cost of maintaining backhaul, a cost of maintaining core network and customer care;

wherein the network cost model includes model parameters for a number of cell sites, antenna height, cell site cost, deployment cost, backhaul cost, and core network cost;

wherein the bandwidth model includes model parameters for downlink bandwidth, uplink bandwidth, backhaul bandwidth, core network bandwidth and spectrum;

each of the models storing relationships between the model parameters;

wherein the relationships stored by the models include,

- a relationship between the number of cell sites and the spectrum;

- a relationship between the number of cell sites and the antenna height;

- a relationship between the antenna height and the cell site cost;

- a relationship between the downlink and uplink bandwidth, the backhaul cost and the core the network cost;

- a relationship indicating that the backhaul cost and the core network cost increase as the cell site density increases;

- a relationship between the number of cell sites the cost of maintaining cell sites;

the simulating to determine at least one candidate solution for the deployment of the communications network service,

the simulating includes determining network bandwidth requirements for the deployment of the 4G broadband service based on at least the bandwidth model;

wherein the base case model, the network cost model, and the bandwidth model each include at least one dependent model parameter that is dependent on a corresponding dependent model parameter in the model or in at least one of the other models,

wherein a value of each dependent model parameter is determined during the simulating using relationship curves, wherein the bandwidth model stores a relationship curve to estimate the number of cell sites for a given spectrum model parameter value;

generating (506) an analysis for each candidate solution, the analysis evaluating an impact of the changeable parameters and the existing service parameters on the deployment of the 4G broadband service,

wherein the at least one candidate solution includes business and technology sub-solutions.

VIII. Claim 1 of the first auxiliary request has the following amendments over the main request:

the replacement, in the first feature, of the text *"said technology changeable parameters being associated with technology data for the communications network service"* by *"the changeable parameters identifying an end user coverage area, an estimated number of users in areas in the coverage area and a downlink bandwidth to the end user"*;

the replacement, in the second feature, of the text *"existing network infrastructure and services"* by *"a 3G service"*;

the addition, in the third feature, of the word *"constraints"* immediately after *"technology changeable parameters"*;

the addition, after the third feature, of the feature *"wherein the constraints include a level of QoS for the 4G broadband service;"*.

IX. The second auxiliary request differs from the first auxiliary request by the addition of the following text at the end of claim 1:

"wherein the analysis includes an analysis of the at least one candidate solution across multiple domains of the 4G broadband service, wherein the domains include a radio domain, a backhaul domain, a core network domain and an operations domain,

wherein the radio domain includes end user equipment cell sites and radio network controllers, wherein the backhaul domain includes controllers and cabling, wherein the core network domain includes switches, wherein the operations domain includes a fault management system".

X. The appellant's arguments can be summarised as follows:

The invention related to a simulation method for deployment of a 4G broadband service by which information was provided over a network; this constituted an adequately defined technical purpose for a computer-implemented method functionally limited to that purpose in accordance with the headnote in decision T 1227/05.

The deployment of a 4G broadband service was inherently

technical since it involved a computer system, a network, network-enabled devices such as switches, modems etc., and other technical means.

The step of determining network bandwidth requirements based on a bandwidth model was a technical step. The model parameters of the bandwidth model related to technical data that could be measured physically.

The invention related to the simulation of a real-world physical configuration of a network. It was not just an abstract modelling of an undefined physical system.

The simulation had the effect of enabling broadband services to be deployed more efficiently, because the various configurations of the network could be simulated prior to building those configurations.

Reasons for the Decision

1. *Background*

1.1 The invention concerns a computer simulation for the deployment of a 4G broadband service.

1.2 The deployment of a 4G broadband service may give rise to many different scenarios. By means of computer simulation, the various scenarios can be analysed, without first implementing the underlying broadband system.

1.3 As shown in Figure 1 of the published application, the simulation is based on a number of existing service parameters 104, changeable parameters 102, and

constraints 103, and it involves the use of models that define the relationships between the various parameters. There is a "base case model" 110, a "network cost model" 111, and a "bandwidth model" 112. The output of the simulation is one or more candidate solutions 120 for the deployment of the 4G broadband service.

2. *Main request, inventive step*

2.1 In accordance with the principles set out in T 641/00 (Two identities/COMVIK, OJ EPO 2003, 352), an inventive step can be based only on features that make a technical contribution.

2.2 It is common ground that the subject matter in claim 1 of the main request differs from the commonplace data processing system by the simulation carried out by that system. The question is whether this contribution is a technical one that counts towards inventive step.

2.3 A computer simulation is essentially the use of a model running on a computer to assess or predict the functioning of a system. It is difficult to see what technical effect such a process might have. The model is itself an abstract, mathematical concept. The simulation process using the model does not have any technical effect on the simulated system. Indeed, that system might not even exist in physical form. There is unarguably an effect on the computer running the simulation, but not one that goes beyond the normal effects of running software on a computer.

2.4 Nevertheless, in decision T 1227/05 (OJ EPO 2007, 574), it was held that specific technical applications of computer-implemented simulation methods were themselves

to be regarded as modern technical methods, which formed an essential part of the fabrication process, and preceded actual production, mostly as an intermediate step. In that light, such simulation methods could not be denied a technical effect merely on the ground that they did not yet incorporate the physical end product (Headnote II).

2.5 The Board notes that decision T 1227/05 draws a distinction between an adequately defined technical system and a "metaspecification", i.e. the description of something abstract, or non-technical, in words that make it seem technical. In the latter case, technicality cannot be derived from the simulated system.

2.6 It is helpful to consider what actually was judged to be an adequately defined technical system in T 1227/05. The invention in that case concerned the simulation of a circuit under the influence of 1/f noise. The circuit had input channels, noise input channels, and output channels, and its performance was described by differential equations. The Board considered the circuit to be an adequately defined class of technical items, and the simulation of the circuit to be a functional technical feature.

By contrast, the modelling of an undefined "physical system" in decision T 49/99 was considered to be a metaspecification of something abstract. That case concerned a method for analysing a physical system and providing an information model reflecting the essential properties of the physical system in terms of a hierarchy of abstract objects implemented using relational database technology. That type of information modelling was considered to be an

intellectual activity that had all the traits typical of non-technical branches of knowledge.

2.7 In the Board's view, claim 1 of the main request does not define the simulated system in a way that clearly establishes it as technical.

The deployment of a 4G broadband service is a broad concept, which covers both business scenarios and technical scenarios. In other words, it is not clear that the purpose of the simulation is technical. Indeed, looking at the example in Figure 4 of the published application, the purpose of the simulation is to determine cost (CAPEX, OPEX).

2.8 Claim 1 refers to a number of parameters that describe the broadband service. Some of them, for example "network" and "bandwidth", may seem technical. However, as established in T 1227/05, the mere use of technical terms is not enough to adequately define a technical system. That is what is meant by metaspecification.

In the Board's view, claim 1 does not establish any clear, technical relationship between the various parameters. The claim mentions a number of relationships, but only a few of them, for example the relationship between the number of cell sites and the spectrum, could count as technical; the others are about cost. However, claim 1 does not define the complete relationships between the parameters, for example by means of a formula, and, in any case, it is not clear how those relationships are used in the simulation. There is no complete simulation model that could be seen as technical.

2.9 The appellant argued that in order to determine the cost in Figure 4, the technical configuration of the broadband system had to first be determined. This was a technical step.

2.10 The Board does not see that those configurations are adequately defined in the claim. In any case, working out different configurations of a broadband system, and calculating the cost of implementing and operating such a system, is an intellectual activity more like the information modelling in T 49/99 than the circuit simulation in T 1227/05.

2.11 For these reasons, the Board concludes that the simulation in claim 1 is not technical and does not contribute to inventive step. The implementation of the simulation on the commonplace data processing system would have been obvious to the skilled person using routine methods. Consequently, the subject-matter of claim 1 of the main request does not involve an inventive step (Article 56 EPC).

3. *First auxiliary request*

3.1 Claim 1 of the first auxiliary request defines that the changeable parameters identify an end user coverage area, an estimated number of users in areas in the coverage area, and a downlink bandwidth to the end user. Those are the changeable parameters in the example shown in Figure 4 and described in paragraphs [0040] to [0042] of the published application.

Claim 1 also specifies that the existing service parameters describe a 3G service, and that the simulation is based on a constraint concerning the

quality of service (QoS) level for the 4G broadband service.

3.2 The Board takes the view that claim 1 of the first auxiliary request defines a non-technical simulation, for the same reasons as given in respect of the main request. Neither the simulated system, nor the purpose of the simulation, is adequately defined and technical. The amendments over the main request do not establish a clear technical relationship between the technical parameters of the simulated system that amounts to a technical simulation model.

3.3 For these reasons, the subject-matter of claim 1 of the first auxiliary request lacks an inventive step (Article 56 EPC).

4. *Second auxiliary request*

4.1 Claim 1 of the second auxiliary request specifies that the analysis of the candidate solutions take place across multiple domains of the 4G broadband service, wherein the domains include a radio domain, a backhaul domain, a core network domain and an operations domain.

The radio domain includes end user equipment cell sites and radio network controllers, the backhaul domain includes controllers and cabling, the core network domain includes switches, and the operations domain includes a fault management system.

4.2 In the Board's view, the features added by the second auxiliary request do not provide anything technical over the previous requests. They are just words without a clear technical context, in other words metaspecifications.

4.3 Thus, for the same reasons as provided with regard to the main request, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek W. Chandler

Decision electronically authenticated