PART 3
INNOVATIVE INFORMATION TECHNOLOGIES IN INDUSTRY AND SOCIAL-ECONOMIC SPHERE

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The materials of The Third International Scientific — Practical Conference is presented below. The Conference reflects the modern state of innovation in education, science, industry and social-economic sphere, from the standpoint of introducing new information technologies. Digest of Conference materials is presented in 3 parts. It is interesting for a wide range of researchers, teachers, graduate students and professionals in the field of innovation and information technologies.

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Figure 3. Finding the host with the minimal Predict (phase 4)

Because quality metrics of each host change over time, the analytic hierarchy process makes it possible to select the best location of an instance during its start. Thus, the proposed solution will help improve the efficiency of resource allocation and its further utilization increasing effective capacity of the cloud. Moreover, the problem of provisioning applications with big differences in systems requirements will be solved due to using zones. The method also makes it possible to significantly reduce the volume of further resource reallocation, lowering the expense of computational resource for this process.

References

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INTRA-SYSTEM EMC: STATE, PROBLEMS AND TRENDS

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Intra-system EMC evolution problems, new high speed and high sensibility systems trends are considered. General problems solutions are considered. EMC specialists training need is pointed.

Keywords: electromagnetic compatibility, electronic equipment, shielding, signal integrity.

Different system interaction is one of the most interest technical problems, because current electronics development process makes more new tools application result dependencies on its interaction conditions.

At early electronics evolution stages interaction tasks solved generally by circuit design improvements and frequency band planning. At present time individual measures are insufficient and it is system level problem. EMC requirements must be taken into account at all stages of telecom and electronic equipment live cycle. We must not divide equipment design problems from its compliance supply problem at service stage. If we ignore EMC problems until they leads to equipment interaction malfunction, then EMC requirements provision will be costly and unsatisfactory.

With high speed digital processing systems and methods development, intra-system design problems became actual. Background for this changed are mandatory EMC certification of electronic devices, high amount of newly designed electronics, increase of electronics performance. All of that factors enhance EMC problems. Furthermore electromagnetic (EM) environment has changed in modern world. The most power RF interference sources are: nuclear air burst EM pulse, lightnings, geomagnetic storms, high voltage (HV) power lines, railways, HV equipment, power RF transmitters, radars, ultra wide band EM pulse sources, microwave transmitters.

For this environments the following intra-system EMC trends and problems may be pointed. It is need to analyse strong EMI sources to identify radiated EM fields strength RFI and operating frequency band enhancement requires most adequate processes and equipment models in RF domain. These models must be suitable for design solution verification. It is need to develop special software for those factors evaluation as following: signal integrity, shields efficiency, shield interruption taking in account. EMI emission level, virtual certification tests etc.

It is need to review bachelors, masters and postgraduates training courses in field of radioelectronics design and technology and in other connected fields. It is need to include a number of inter-system EMC training courses. At present times EMC is included in some curriculum, but the most of time is dedicated to inter-system EMC problems. Because engineers intra-system EMC skills are insufficient, they seek ways how to improve their EMC skills. New equipment EMC specification requires designers to consider intra-system EMC problems. Deadlines, functional safety and project costs depends on these problems solution. The functional safety problem became one of the most critical, for objects under EM emissions influence. This field solutions are now theoretically based.

Inter-system EMC becomes one of the bases in electronic equipment design, and the most important factor (excluding electrical safety) at production release stage. EMC Technical rules of Customs Union juridically bases EMC problems in Russian Federation, that requires more attention to intra-system EMC.
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