

## DISTRIBUTED INTEGRATED ENVIRONMENT. CONFIGURATION SUBSYSTEM

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Using network architecture for integrated environment (IE) [1] is caused by:

- the presence of software components, which can operate independently and simultaneously;
- opportunity of some EI's components to run generated program fragments, operations for debugger and independent loaded files on the most suitable network node (NN);
- possibility to use global data base (DB) for IE. The access rights to this DB depends on type of used environment's component.

### Network Utility

The user determines the necessity to install IE for local network. After IE installation received configuration file defines the way of IE allocation. To describe the mechanism of interaction between EI's components the concept of task is considered. In this article the task is the process of activating any EI's component or loaded file. For controlling tasks it is proposed the network utility (NU). NU should solve the following objectives:

- estimation and analysis of the code fragments to run, environment's components to operate simultaneously;
- dynamic change of configuration in order to avoid congestion situations.

On the fig.1 it is represented the network architecture of IE. The bottom layer contains the tasks, which can be run independently or controlled by NU. The mechanism of interaction between tasks and NU depends on the type of task and includes these groups of messages:

- activating EI's component;
- stopping EI's component;
- request to activating the program fragment or loaded file;
- receipt about completion of loaded file;
- message for abnormal completion.

Considered mechanism of interaction causes NU to "remember" the status and to check tasks. Therefore NU maintains the following functions:

- resource managing;
- dynamic configuring;
- scheduling tasks;
- controlling tasks.

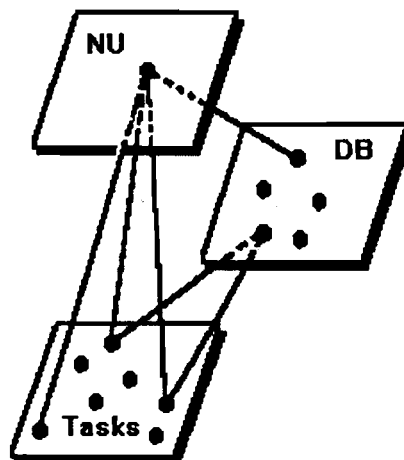


Fig. 1. Network architecture

### Mechanism of activating tasks

NU implements mentioned functions in dependence on the type of task. The tasks, which don't generate new tasks are fixed by NU in the list and then after them completion NU deletes these tasks simply. Another tasks can generate new tasks. After running these tasks NU switches the mode to wait the requests from new tasks. But on all NN the resident blocks of NU is run. When the request appears the NU finds the most suitable NN and sends the message to the resident component of NU. The last runs new task. Correspondently the list of active tasks in NU includes two types of tasks:

- processes, which are deleted after them completion;
- processes with generating the next requests. After completion NU sends the request to task, which activated it. The mechanism of generating new task is represented on fig.2.

### Conclusion

Considered network architecture for IE doesn't limit the possibilities of another applications. On the other hand another applications can use the advantages of NU.

Access to DB can be opened for all components. Therefore several users can not modify record simultaneously but can look all modifications.

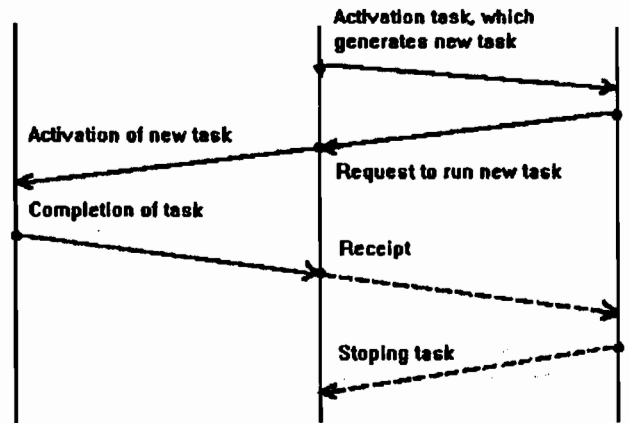


Fig. 2. Peocess of activating new task in time

### References

1. *S.Kiryukhin, N.Kutsevich, M.Pertsovsky.* Hardware and software support for Laboratory experiment automation Systems using IBM PC/AT // Proceedings of Vera+ & VITA CONFERENCE VVConex 93-Moscow, 1993.-P.200-204.

## РАСПРЕДЕЛИТЕЛЬНАЯ ИНТЕГРИРОВАННАЯ СРЕДА. КОНФИГУРАЦИЯ. ПОДСИСТЕМЫ

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Использование сетевой архитектуры для интегрированной Среды вызвано:

- наличием компонентов программного обеспечения, которые могут работать независимо и параллельно;
- способностью некоторых компонентов Среды исполнять некоторые фрагменты формируемой программы, операции для программы отладки и независимо загружаемых файлов на наиболее подходящем узле сети;
- возможность использовать глобальную базу данных для интегрированной Среды. Права доступа к этой базе данных зависят от типа использующегося компонента Среды.