Allocation Procedures for the Central Computing Systems/ Billing of network services

1 Description of the procedures

The allocation procedure sets a maximum for resources that may be used. The only persons excluded from this are external users who use the resources within the framework of a contract with Forschungszentrum Jülich and pay for it. In such cases, consumption within the contractually agreed limits is generally not subject to quota allocation.
Applications for external users are available on request to Mrs Marga Wenzel.
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The computing time quota to projects will be assigned in core-h. In order to ensure that all projects have access to the computer services, project quotas are divided evenly across the months of use. This monthly quota (MQ) and any time left over from the previous month (PQ) is calculated as the amount in the quota account (CQ) for the current month:

> CQ = PQ + MQ (of the current month)

Any hours not used from the quota of the month preceding the previous month is forfeited. During a changeover to a new allocation period, any remaining quota is forfeited independent of the runtime of the project. No hours may be taken over into the new allocation period.

The quota used is debited daily from the current quota account (CQ). This account may be overdrawn to the amount of the monthly quota of the following month (up to -MQ) without affecting the processing priority of the job. Only when the MQ of the following month has also been used up all subsequent jobs will be assigned lowest priority for the rest of that month.

Using the monthly quota (MQ) of the following month is only possible if the user's allowance for computing resources includes the following month. In the last month of an allocation period, access to the monthly quota (MQ) of the following month is not possible.
An overdrawn account in the preceding months is carried over into the current quota (CQ) as a negative quota.

Project quotas on JUWELS and JURECA which are <-101% will be set to -101% at the beginning of every month. This offers projects that have used the systems in times of low demand and have thereby strongly overdrawn their quota, the possibility to reach - in reasonable time - a state in which they can again submit jobs with regular priority. The users will be notified about their waived quota with the monthly notification.

Another allocation procedure is realized by means of fixed quotas for annual quotas less than 100000 core-h. The quota used is debited to the one-time approved quota account.

The head of a project will be informed monthly by email about the current quota status. The members of a project receive an information if the project quota is used up or is again balanced. In case of a monthly quota the email informs about the total and the monthly allocation. Here the described three month window has to be taken into account. In the current month the members of the project have an amount of -100% up to +200% available. The percentage value is based on the allocation of one month. Only in case the usage falls below the -100% the status of the project will change. In case of the fixed quota mode the email informs about the total quota and the overall consumption. Here the percentage is based on the total quota.

2 Quota on the supercomputers JURECA and JUWELS

Usage is calculated according to the length of wall clock time for which the allocated nodes are occupied, where partly used nodes always count as full nodes. Each JURECA node is composed of 24 cores, each JURECA-BOOSTER node of 68 Cores, each JUWELS node of 48 Cores, and each JUWELS-GPU node of 40 Cores.

2.1 Overdrawn quota accounts

If the current quota account (CQ) is overdrawn by more than one month's quota (CQ < -MQ) or the total quota has been exhausted, then all subsequent batch jobs for all users from the same group or organizational unit will be put on hold until CPU capacity is free.
The maximum time that can be requested to process jobs is reduced to 6 hours.
Jobs that require more computing time will be refused.
The time used by the jobs will still be debited to the quota account as described above.

3   Billing formula for IP addresses

For the use and delivery of central network services and IT security services provided by JSC (JuNet, WLAN, Internet, VPN, eduroam, FZJ-CERT, firewall, Anti-virus software, consulting, ...) the costs incurred are charged by ILV (Internal accounting for services).

In order to avoid more expensive individual invoices for services used and to allow the provision of innovative services that are initially rarely used, the total costs for the IT infrastructure operated by JSC will be divided between the number of IP addresses provided for the OU. The reasoning behind this simple model is that OUs with multiple IP addresses make more use of the infrastructure than those with fewer IP addresses.

The use of services in contingent units (KE) is calculated using the following formula:

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Usage (KE) = fc * AP * NIP
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Resource parameters are:

```
NIP:  number IP addresses for an Organisational
      Units in an allocation period (AP)
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Factors:

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fc:  10.76 (KE/month)
AP:  1     (month)
```

Quota allocation does not occur in this case.