Проектирование и реализация каркаса распределенной системы мониторинга и диспетчеризации процессов гетерогенной среды

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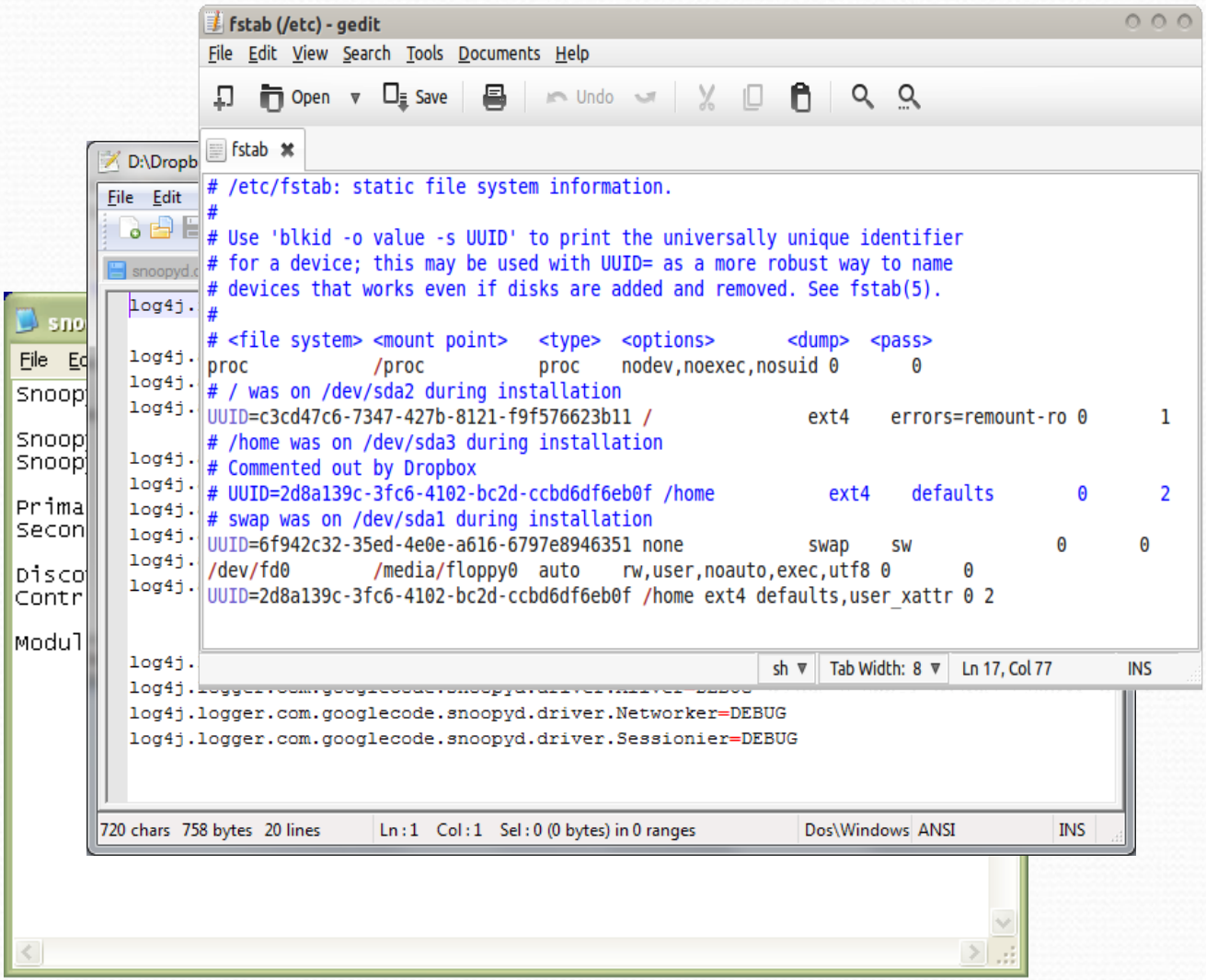
Сложность восприятия текстовой информации

```
C:\snoopyd>snoopyd.cmd
com.googlecode.snoopyd.core.Snoopyd - running snoopyd 0.0.0
com.googlecode.snoopyd.core.Kernel - init kernel drivers
com.googlecode.snoopyd.core.Kernel - init kernel adapters
com.googlecode.snoopyd.core.Kernel - init primary ice adapter
com.googlecode.snoopyd.core.Kernel - primary adapter endpoints is a "tcp -h 192.168.0.10 -p 10000"
com.googlecode.snoopyd.core.Kernel - init secondary ice adapter
com.googlecode.snoopyd.core.Kernel - primary secondary endpoints is a "udp -h 192.168.0.10 -p 10000"
com.googlecode.snoopyd.core.Kernel - init kernel listeners
com.googlecode.snoopyd.core.Kernel - init kernel filters
com.googlecode.snoopyd.core.Kernel - init kernel rate
com.googlecode.snoopyd.core.Kernel - init self session
com.googlecode.snoopyd.core.Kernel - starting kernel thread
com.googlecode.snoopyd.core.Snoopyd - ... identity: dev/9dbaaa52-8902-4cd7-89b7-1252a6a247ca
com.googlecode.snoopyd.core.Snoopyd - ... hostname: Node3
com.googlecode.snoopyd.core.Snoopyd - ... rate: 17
com.googlecode.snoopyd.core.Snoopyd - setting shutdown hook for snoopyd
com.googlecode.snoopyd.core.Snoopyd - fetching kernel drivers:
com.googlecode.snoopyd.core.Snoopyd - ... Sessionier
com.googlecode.snoopyd.core.Snoopyd - ... Moduler
com.googlecode.snoopyd.core.Snoopyd - ... Aliver
com.googlecode.snoopyd.core.Snoopyd - ... Networker
com.googlecode.snoopyd.core.Snoopyd - ... Resulter
com.googlecode.snoopyd.core.Snoopyd - ... Configurer
com.googlecode.snoopyd.core.Snoopyd - ... Hoster
com.googlecode.snoopyd.core.Snoopyd - ... Scheduler
com.googlecode.snoopyd.core.Snoopyd - ... Controller
com.googlecode.snoopyd.core.Snoopyd - ... Discoverer
com.googlecode.snoopyd.core.Snoopyd - fetching drivers adapters:
com.googlecode.snoopyd.core.Snoopyd - ... DiscovererAdapter
com.googlecode.snoopyd.core.Snoopyd - ... SessionierAdapter
com.googlecode.snoopyd.core.Kernel - handle SnoopydStartedEvent with SuspenseHandler
com.googlecode.snoopyd.core.Kernel - init kernel
com.googlecode.snoopyd.core.Kernel - ... activating Networker
com.googlecode.snoopyd.core.Kernel - ... activating Scheduler
com.googlecode.snoopyd.core.Kernel - handle NetworkEnabledEvent with SuspenseHandler
com.googlecode.snoopyd.core.Kernel - handle KernelStateChangedEvent with SuspenseHandler
com.googlecode.snoopyd.core.Kernel - changing kernel state on OnlineState
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle DiscoverRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle ChildSessionRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle ParentSessionSendedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle ChildSessionSendedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle ParentSessionRecivedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - handle KernelStateChangedEvent with OnlineHandler
com.googlecode.snoopyd.core.Kernel - changing kernel state on ActiveState
com.googlecode.snoopyd.driver.Aliver - starting Aliver
com.googlecode.snoopyd.driver.Resulter - starting Resulter
com.googlecode.snoopyd.driver.Resulter - use connection url: null
com.googlecode.snoopyd.driver.Aliver - parent node is alive: dev/9dbaaa52-8902-4cd7-89b7-1252a6a247ca
com.googlecode.snoopyd.driver.Aliver - child node is alive: dev/9dbaaa52-8902-4cd7-89b7-1252a6a247ca
com.googlecode.snoopyd.driver.Resulter - The url cannot be null
com.googlecode.snoopyd.driver.Scheduler - starting Scheduler
com.googlecode.snoopyd.core.Kernel - handle ScheduleUpdatedEvent with ActiveHandler
com.googlecode.snoopyd.driver.Scheduler - synchronize shceduler with dev/9dbaaa52-8902-4cd7-89b7-1252a6a247ca
com.googlecode.snoopyd.driver.Scheduler - updating scheduler
com.googlecode.snoopyd.driver.Scheduler - set scheduler for node dev/9dbaaa52-8902-4cd7-89b7-1252a6a247ca
com.googlecode.snoopyd.driver.Scheduler - set schedule for module 53abc066-f972-470d-bebf-d598231fccc3
com.googlecode.snoopyd.driver.Scheduler - set schedule for module 0db484f3-9c9d-4423-87fe-a2e331d6fa66
com.googlecode.snoopyd.driver.Scheduler - set schedule for module d2545757-0011-4fed-ad55-072526b09279
com.googlecode.snoopyd.driver.Scheduler - set schedule for module 385425cf-ca5d-4c18-a9d1-1c841d701a3e
com.googlecode.snoopyd.driver.Scheduler - set schedule for module 7edc819d-ab97-432b-8c87-8cc8e8686fca
com.googlecode.snoopyd.core.Kernel - handle ScheduleTimeComeEvent with ActiveHandler
com.googlecode.snoopyd.core.Kernel - handle ScheduleTimeComeEvent with ActiveHandler
com.googlecode.snoopyd.core.Kernel - handle InvokationEvent with ActiveHandler
com.googlecode.snoopyd.core.Kernel - handle InvokationEvent with ActiveHandler
com.googlecode.snoopyd.core.Kernel - handle ResultRecievedEvent with ActiveHandler
com.googlecode.snoopyd.driver.Resulter - storing result []
com.googlecode.snoopyd.core.Kernel - handle ResultRecievedEvent with ActiveHandler
com.googlecode.snoopyd.driver.Resulter - storing result []
```

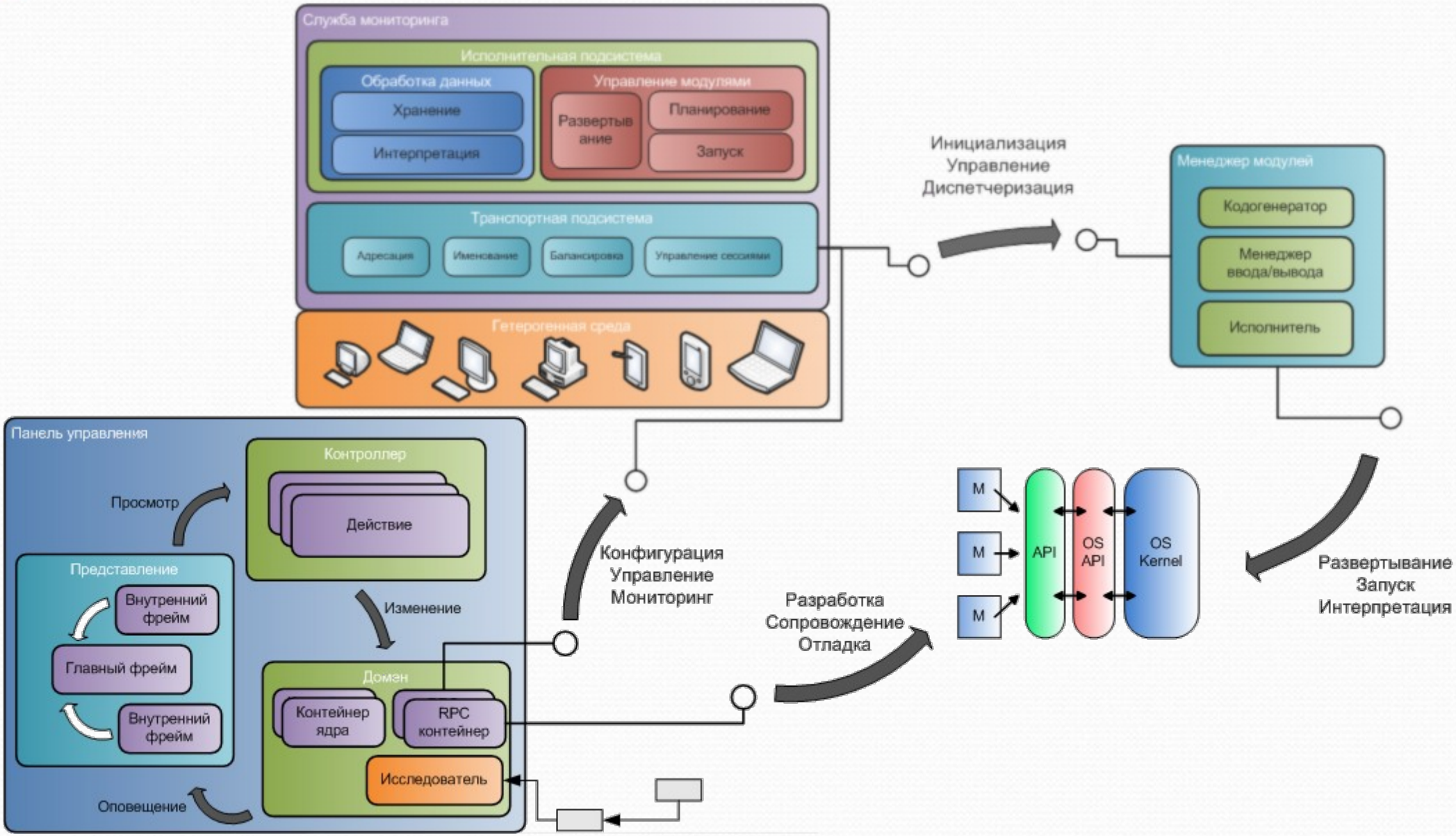
Сообщения ядра в стандартном потоке вывода

Недостатки файлов конфигурации

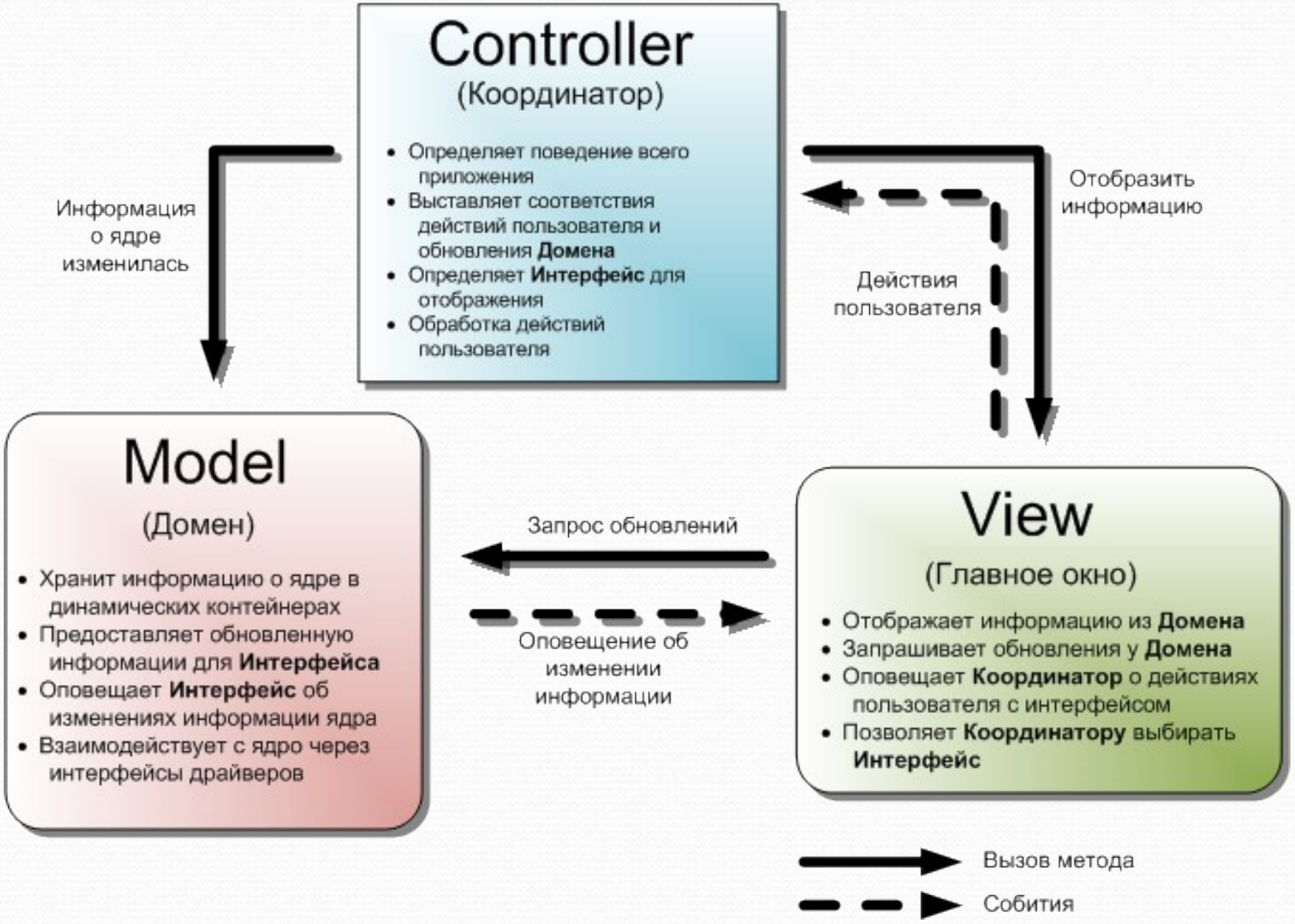


- Децентрализованное внесение изменений в конфигурацию нескольких приложений
- Сложность внесения изменений в процессе работы приложений
- Сложность восприятия информации в таком виде
- Существует вероятность внесения ошибки или опечатки

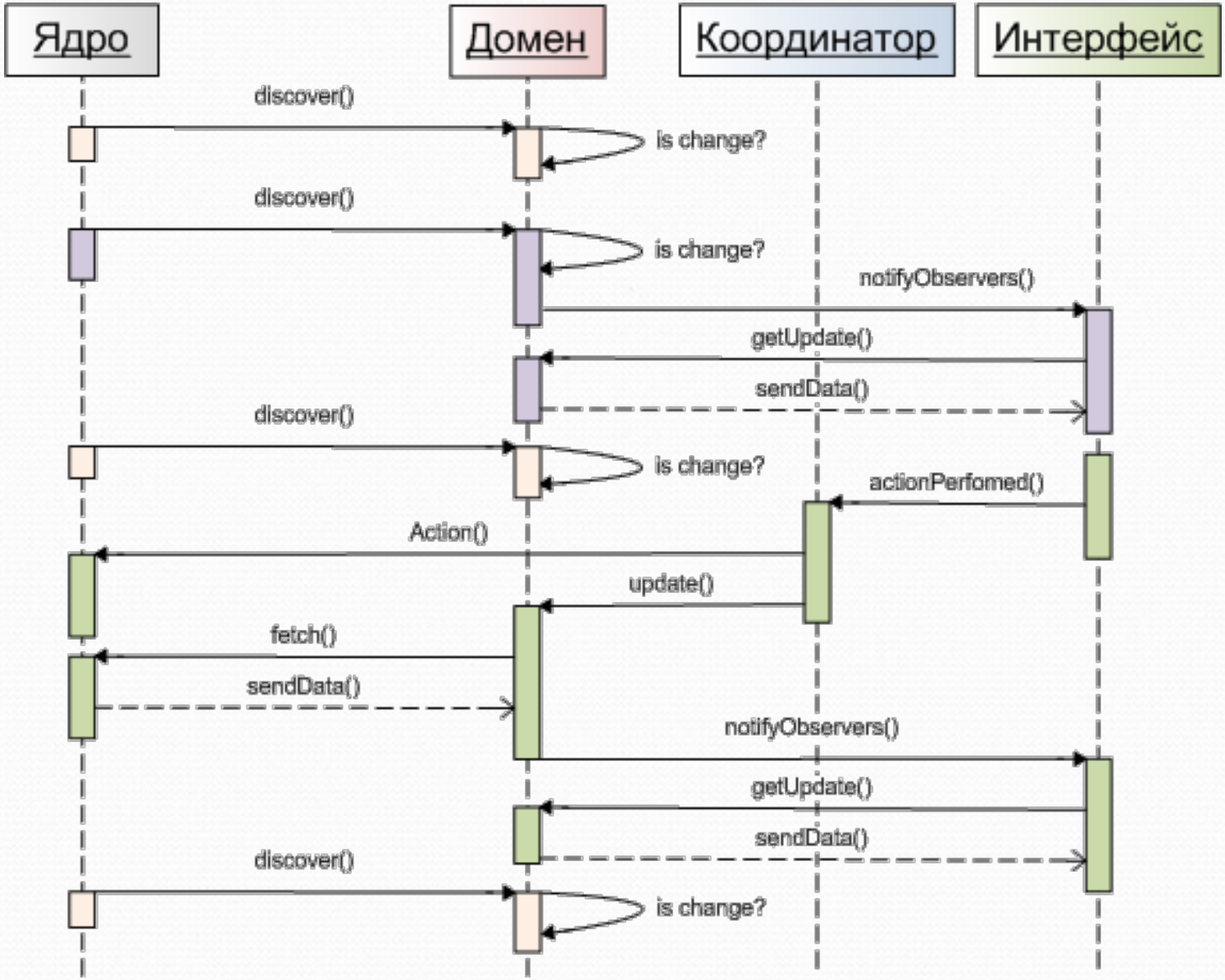
Структура проекта



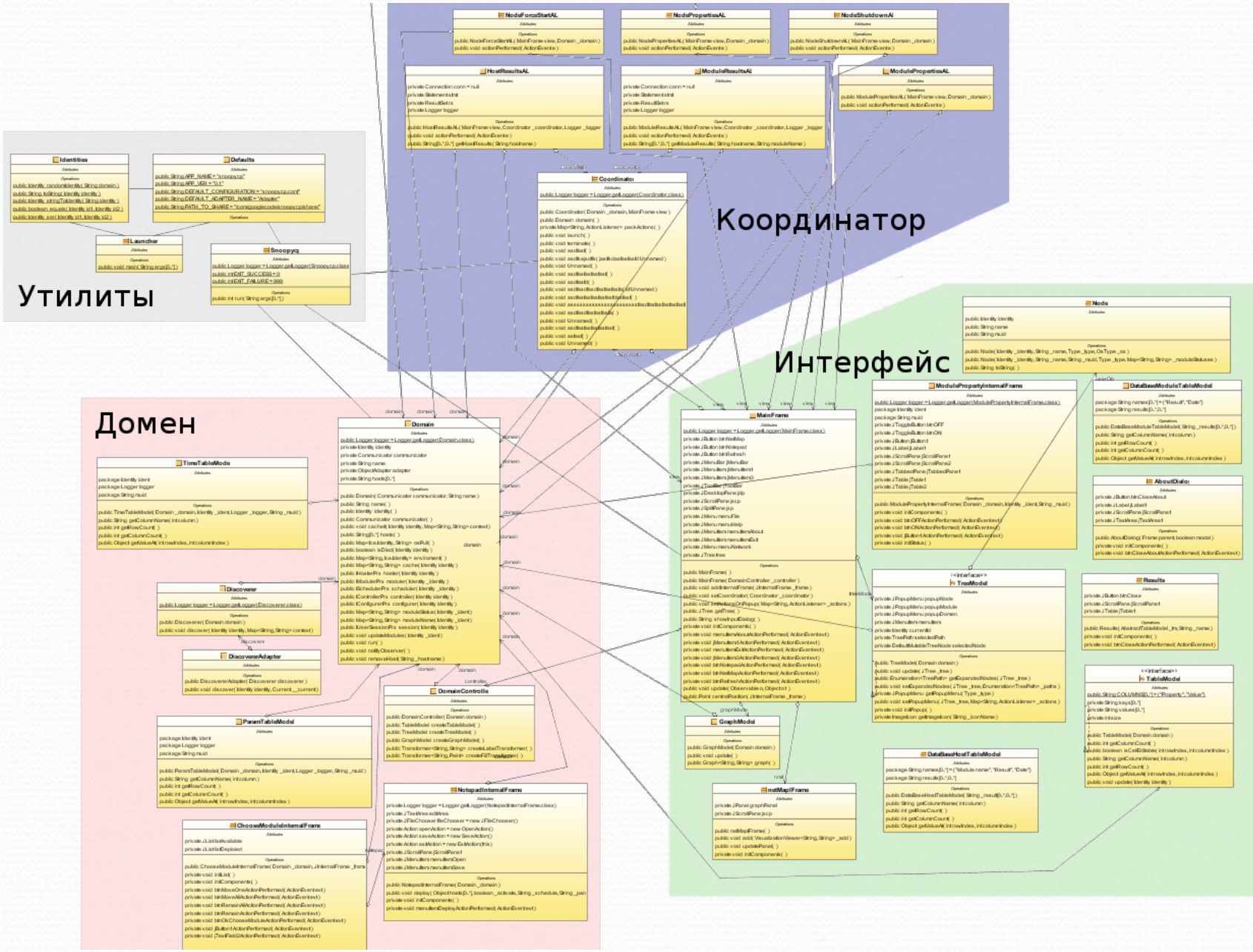
Модель приложения MVC



Функционирование и взаимодействие с ядром

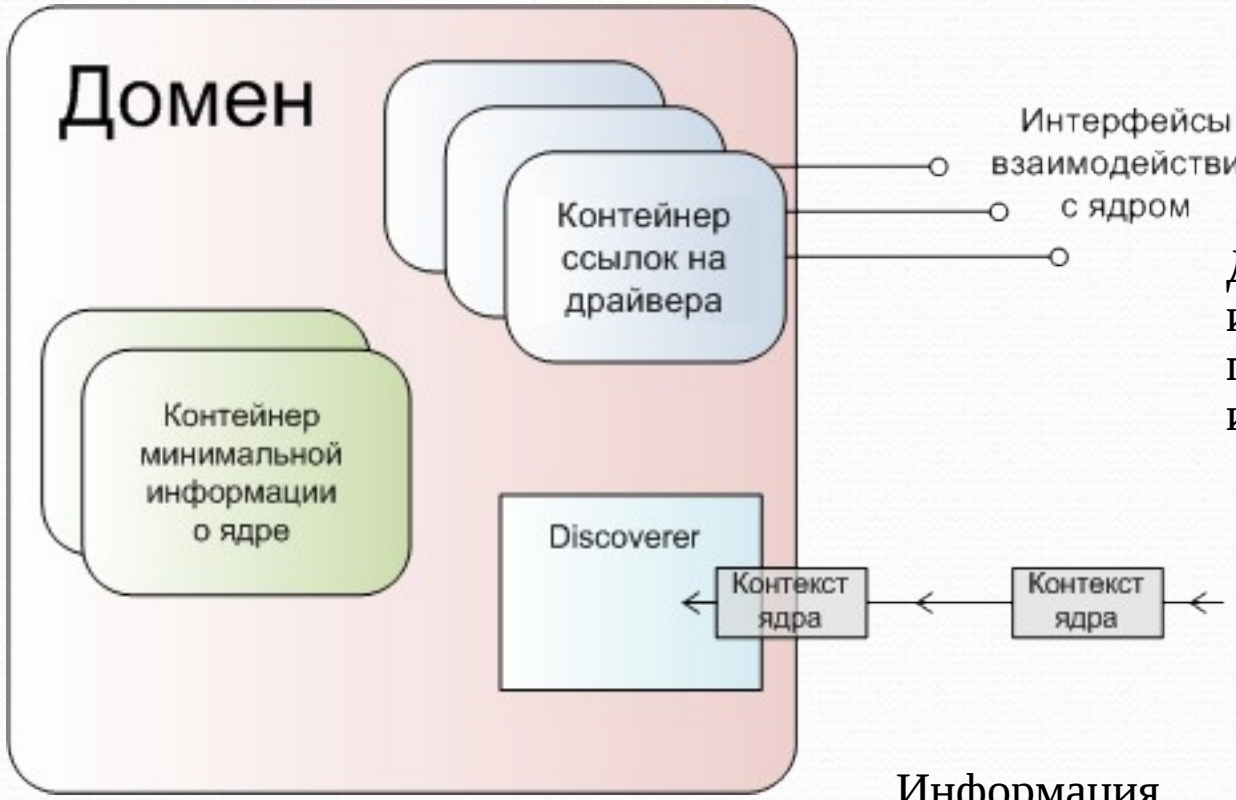


Архитектура приложения



Хранение информации

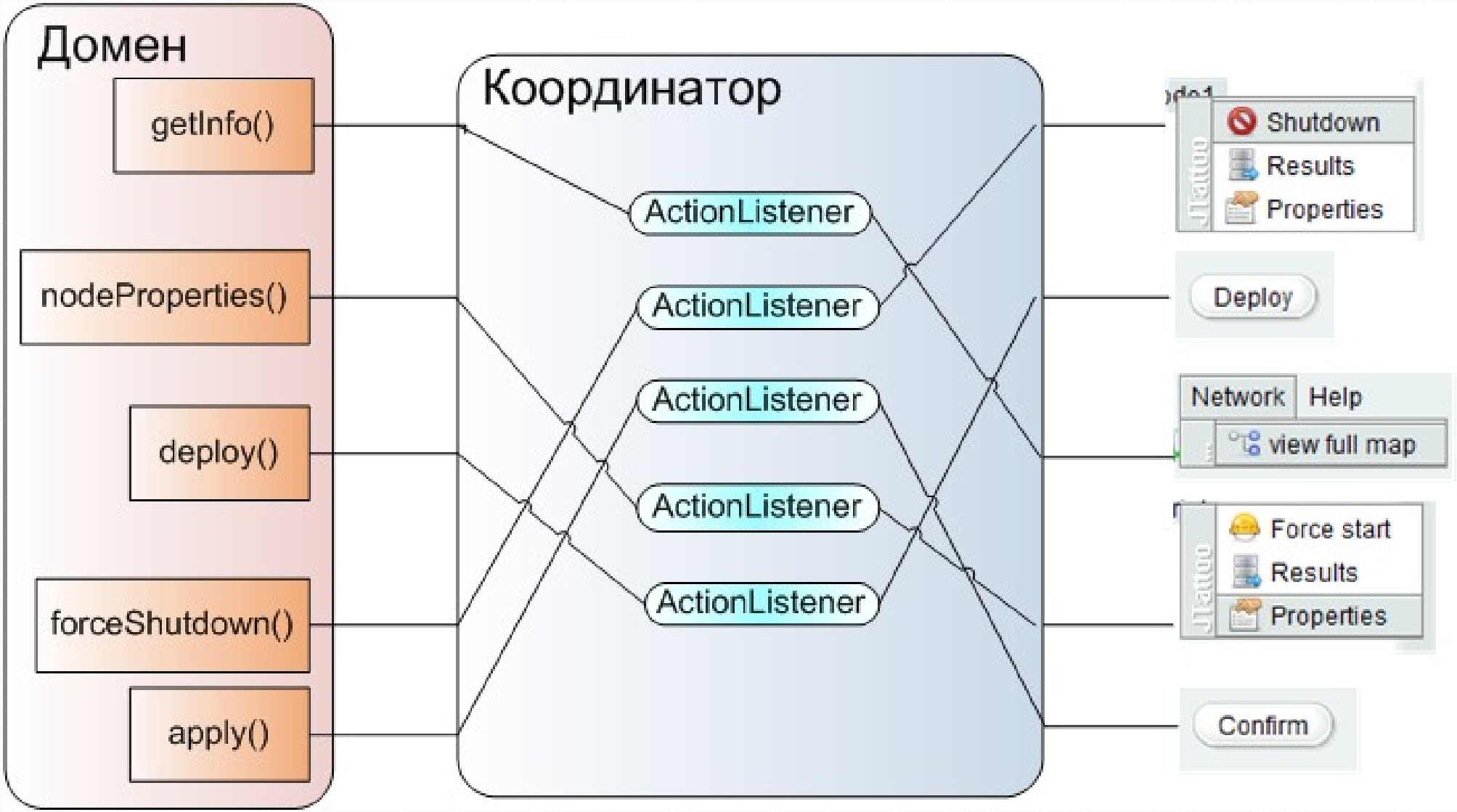
Постоянно хранится только минимальная информация о ядре



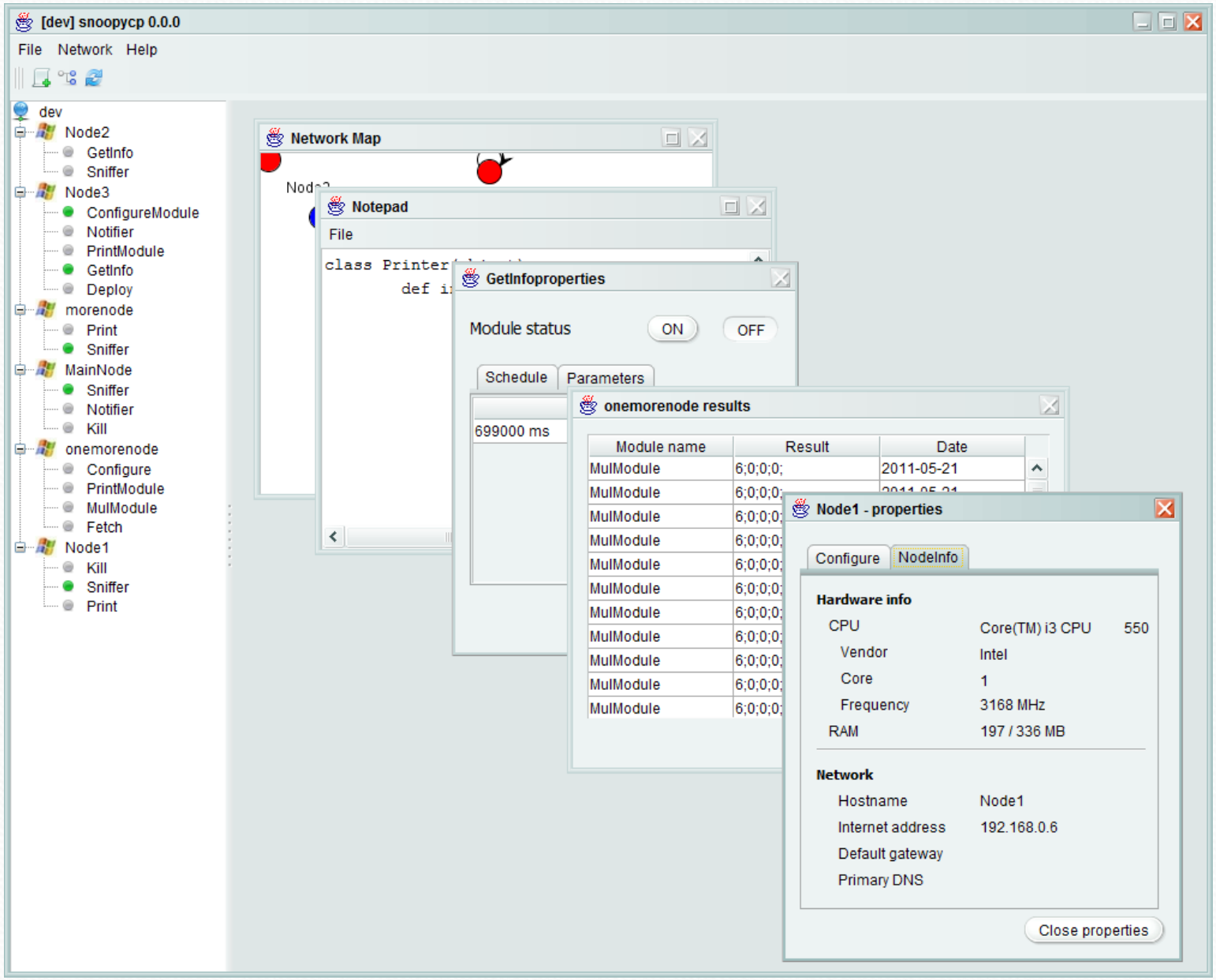
Дополнительная информация получается через интерфейсы

Информация автоматически обновляется через получаемый от ядра контекст

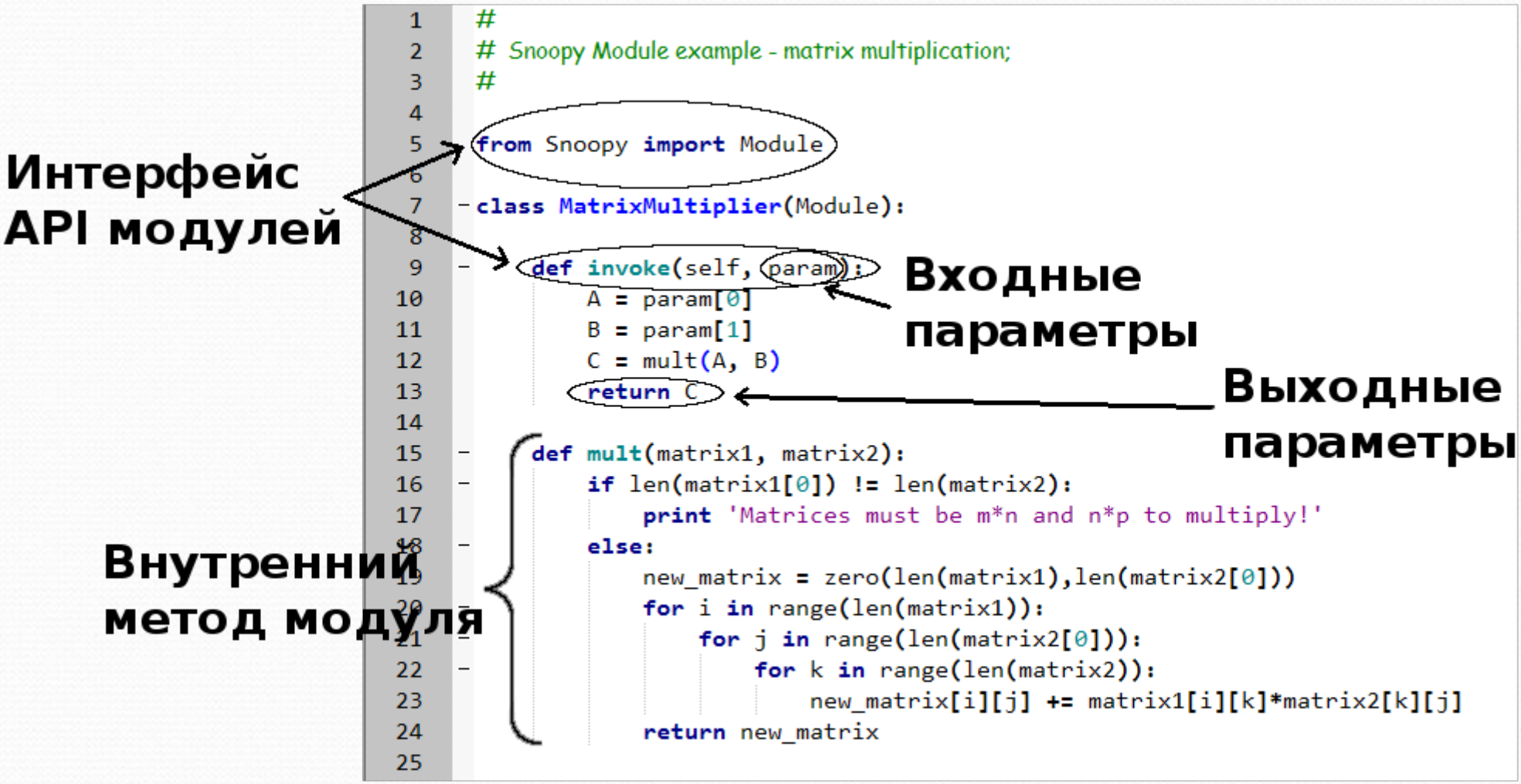
Взаимодействие компонентов



Визуализация

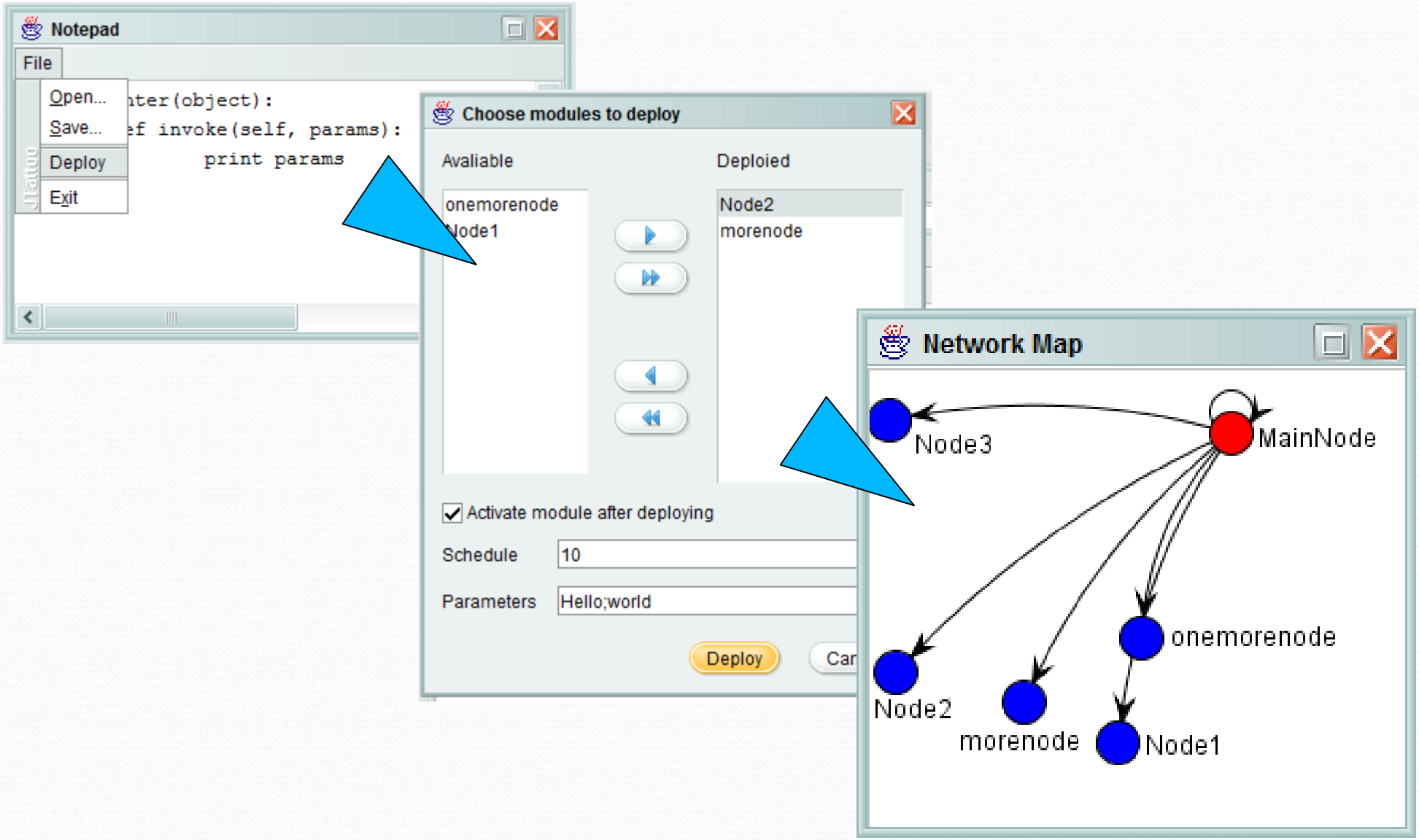


Использование API




```
1   #
2   # Snoopy Module example - matrix multiplication;
3   #
4
5   from Snoopy import Module
6
7   class MatrixMultiplier(Module):
8
9       def invoke(self, param):
10          A = param[0]
11          B = param[1]
12          C = mult(A, B)
13          return C
14
15      def mult(matrix1, matrix2):
16          if len(matrix1[0]) != len(matrix2):
17              print 'Matrices must be m*n and n*p to multiply!'
18          else:
19              new_matrix = zero(len(matrix1),len(matrix2[0]))
20              for i in range(len(matrix1)):
21                  for j in range(len(matrix2[0])):
22                      for k in range(len(matrix2)):
23                          new_matrix[i][j] += matrix1[i][k]*matrix2[k][j]
24          return new_matrix
25
```

Развертывание модуля



Итоги

- **Проанализированы задачи** администратора систем и **построена модель** для визуализации данных и управления удаленными узлами

- **Разработана структура** системы визуализации и управления

- **Реализованые подсистемы** визуализации и управления включают:
  - ✓ Хранение информации о ядре
  - ✓ Визуализация информации и процессов
  - ✓ Координация взаимодействия компонентов

- **Разработан интерфейс** программирования модулей

Спасибо!
Вопросы?