Analysis of DHCP Log Files for Registration of Different Events in Network

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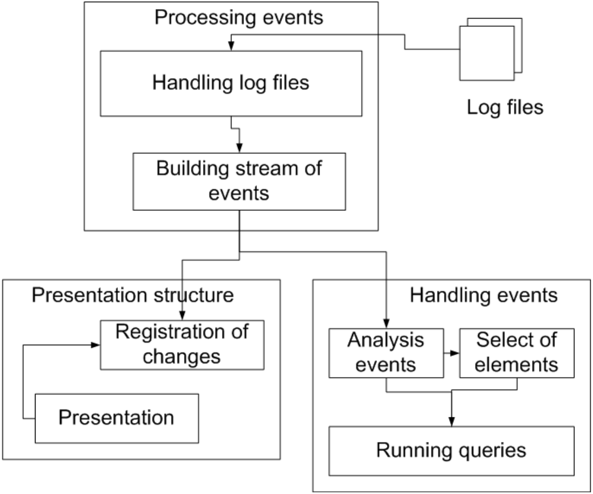
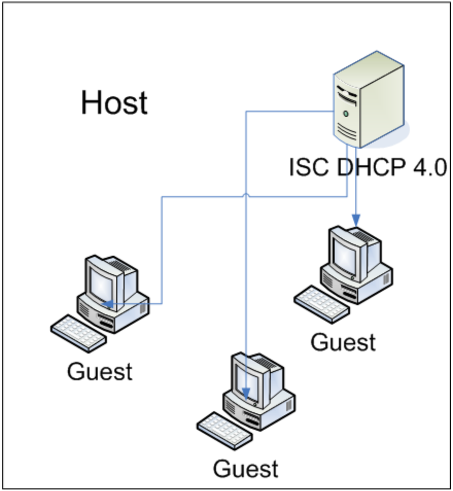
Nest architecture of processing of events



Work's organization



List Events

- PC‘s registration in the net
- Correct work completion of PC in the net
- Incorrect work completion of PC in the net
- Attempt of unknown or forbidden PC to appear in the net
- Lack of IP-addresses which are given out by the DHCP-server

PC‘s registration in the net

The server gives out one of its free IP-addresses and fixed it in its log file:

```
lease 192.168.95.77 {
        starts 0 2008/02/17 17:18:47;
        ends 0 2008/02/17 17:48:47;
        binding state active;
        next binding state free;
        hardware ethernet 00:0c:29:fe:6e:11;
    }
```

Correct work completion of PC in the net

This record we can identify by the mark "binding state":

```
lease 192.168.95.77 {
        starts 0 2008/02/20 23:18:18;
        ends 0 2008/02/20 23:21:59;
        binding state free;
        hardware ethernet 00:0c:29:fe:6e:11;
    }
```

Incorrect work completion of PC in the net

Algorithm:

- Next record with defined MAC.
- If exist two record pc's registration with this MAC, so fix incorrect work completion.
- If doesn't exist update record, so fix incorrect work completion.
- Go to step 1.

Attempt of unknown or forbidden PC to appear in the net

In syslog system the significative record about the try of connection will be fixes:

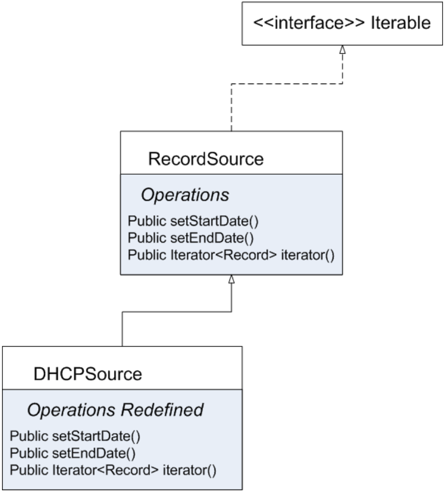
```
Feb 21 19:36:41 aphina dhcpd: DHCPDISCOVER from
00:0c:29:fe:6e:11 via vmnet1: unknown client
```

Lack of IP-addresses which are given out by the DHCP-server

If we have a fixed addresses' range which the server is able to give out but we suddenly have more clients so this situation is fixed in the syslog system:

```
Mar 20 15:56:54 aphina dhcpd: DHCPDISCOVER from 00:0c:29:f7:f2:09 via vmnet1: network 192.168.92.0/24: no free leases
```

Classes for processing sources



<<interface>> Iterable

RecordSource

Operations

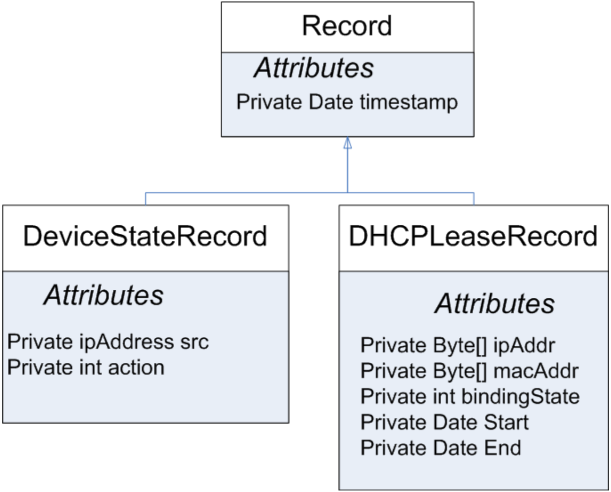
Public setStartDate()
Public setEndDate()
Public Iterator<Record> iterator()

DHCPSource

Operations Redefined

Public setStartDate()
Public setEndDate()
Public Iterator<Record> iterator()

Classes events



Record

Attributes

Private Date timestamp

DeviceStateRecord

Attributes

Private ipAddress src
Private int action

DHCPLeaseRecord

Attributes

Private Byte[] ipAddr
Private Byte[] macAddr
Private int bindingState
Private Date Start
Private Date End

Conclusion

- The work of the report DHCP is investigated
- The events in the net which can be registered on basis of DHCP are discovered
- The Java classes of the DHCP events processing are realized

Thank you for attention!