Network Status Support in KDE and How To Use It

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Overview

- Motivation
- KDE 3 architecture
- KDE 4 architecture

Overview

- KDE devices live in dynamic networks
- We should give users and applications a smooth ride in these conditions
- We have architecture to do this
- Listen to find out more

Use cases

- Network Control and Management
  - dialup connections
  - setup WiFi connections
  - Virtual Private Networks/RAS
- Network information to the user
  - feedback on current conditions
- Network information for applications
  - smoothly adapt to network topology

KDE 3 Architecture

- Network Control & Management, User Information
  - Lots of applications with their own interfaces to the hardware
  - using iwlib or command line tools, (iwconfig, iwlist & co), vendor specific backends
  - KWifiManager, KNemo, Kinternet+smpppd, KPPP, KNetworkManager

KDE 3 Architecture

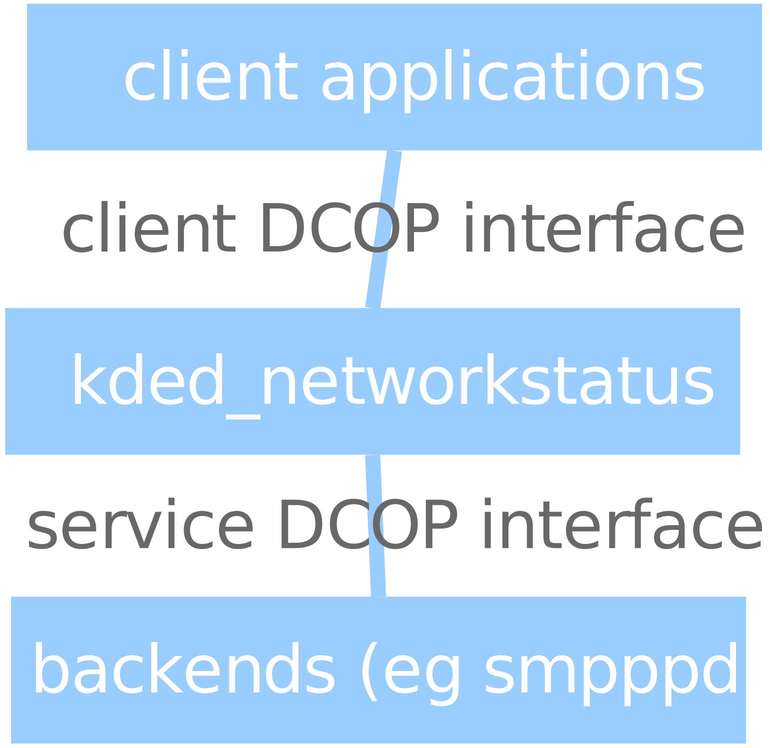
- No consistency for KDE
- High maintenance cost in a difficult area

KDE 3 Architecture

- Network information for applications
  - kded_networkstatus daemon module
  - 2 DCOP interfaces
  - Networking Service interface
  - Client interface

KDE 3 Architecture

- **KDE 3 architecture diagram**



KDE 3 Architecture

- Typical usage
  - Application checks networkstatus
  - Warn user if in offline mode
  - Request online mode (asynchronously)
  - (Daemon requests connection)
  - Queue action
  - On receiving statusChanged signal, proceed

KDE 3 Architecture

- kio_http
- kopete
- kmail
- GroupWise kdepim KResource
- knetworkmanager

KDE 3 Architecture

- kded_networkstatus Service Interface
  - registerNetwork(networkName)
  - setNetworkStatus(networkName, status)
  - unregisterNetwork(networkName)
  - requestShutdown(networkName)

- kded_networkstatus Client Interface
  - networks() - all the registered backends
  - request(hostname) a network connection
  - relinquish() a network connection
  - statusChange() signal
  - shutdownRequested() signal

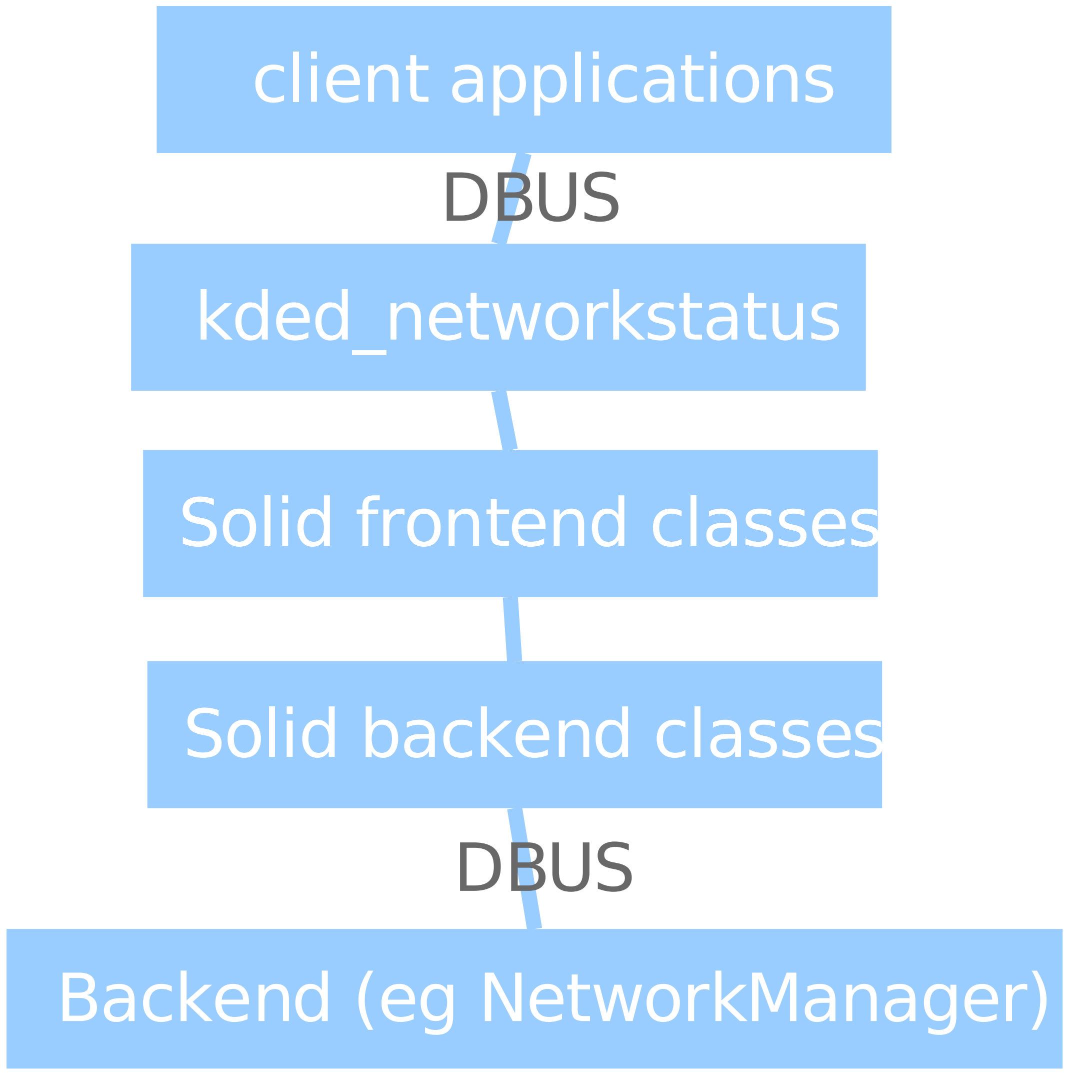
KDE 3 Architecture

- Problems
  - Mixed connection modes, eg to localhost
  - Initiating connections for specific routes (VPN)
  - No scope for different connection types (WiFi vs GSM modem, call by call)
  - Application uptake could be broader
  - Implementation problems (DCOP per http get)

KDE 4 Architecture

- Changes
  - Use Solid as common layer for talking to network layers, well structured framework
  - High level backends (NetworkManager) were developed in KDE 3 lifecycle, use them where available
  - platform specific backends (Win/Mac/*nix)
  - More extensible, by using plugins instead of hacking kded_networkstatus

KDE 4 Architecture



Solid Frontend API

- class NetworkDevice
  - networks()
  - wireless network appeared signals
- class Network
  - IP details
  - setActivated(bool)
  - class WirelessNetwork
    - WiFi specifics
    - authentication

- Solid Frontend API
  - class Authentication
    - data for authentication/crypto schemes
  - class NetworkManager
    - main control object
    - access NetworkDevices
    - flight mode
    - disable networking
  - VPN, Dialup (in preparation)

Next Directions

- NetworkManager+dbus backend
- Outreach for other platforms
- Application support library for kded_networkstatus
- Add to KIO::Job?

Conclusion

Thank you!

Questions?

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