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## *PowerPro 2.2*

### Functional Description

PowerPro is an integrated solution intended for providers of services on a subscription basis. It includes modules for management of databases with clients, services, contracts, subscriptions, amounts due, payments, end devices, etc. The software product PowerPro is entirely consistent with the newest requirements of service providers. This ensures integrated and accessible management of the activities performed by them. The product also supports a set of reports, which provide easy access to the information in the databases.

The system is built entirely on a module basis, which makes it flexible and easy to adapt according to the provider's requirements, without compromising the integrity of the functions performed by other modules. Different levels of access to the information and system functions are maintained with the purpose of achieving efficient control during its exploitation.

The product has been installed successfully at small- and medium-size providers, such as cable TVs, in Bulgaria and abroad.

We offer at your attention a brief description of the system's main functional elements, as well as a summary of the functions sustained by each of them.

1. System Administration
  - 1.1. A list of the company's employees who operate the software product is maintained. Also, there is a built-in capacity for defining and personalizing the levels of access to the data and functions performed by the system.
  - 1.2. For each employee, it is possible to create multiple user profiles with different levels of access to the system's data and functions. Each profile is protected by a user name and password for access.
  - 1.3. Groups of user profiles are defined to establish optimal access to the system's functions.
  - 1.4. Each of the system's modules defines a set of roles, which help in controlling the access to the functions performed by the particular module.



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## 2. Address Register

- 2.1. The system supports a catalog of regions, municipalities and other residential areas in order to ensure prompt and accurate entering of address information.
- 2.2. The system also maintains a register with the names of streets, boulevards, squares and others at the built-up-area level.
- 2.3. There are means for administering the information in the Address Register.

## 3. Client Information Management

- 3.1. The system maintains two types of clients: individuals and legal entities. The information for each client is entered depending on their type.
  - 3.1.1. Information about individuals contains passport data, telephone numbers, clients' files
  - 3.1.2. Information about legal entities includes registration data, Company ID, Tax ID, contact persons, telephone number
- 3.2. For each client, it is possible to enter numerous contracts and for each contract, multiple services can be registered.
- 3.3. The clients are classified into client groups. The groups are used as a means to limit the visibility of data by the system operators.

3.4. The system can perform search of clients by several different indicators:

- 3.4.1. Address recorded in the client's data (registration or mailing address)
- 3.4.2. Address where service is used
- 3.4.3. Contract ID – the search is performed in the entire database. This enables the current user to see the clients' data, which are otherwise inaccessible to him/her. Thus, payments can be recorded regardless of which cash register collects them.
- 3.4.4. Client ID (subscription number) – the search is performed in the entire database. This enables the current user to see the clients' data, which are otherwise inaccessible to him/her. Thus, payments can be recorded regardless of which cash register collects them.
- 3.4.5. Telephone number – allows easy integration with a system for automatic recognition of a client by the telephone number, from which they are calling.
  - 3.4.5.1. Passport data for individuals – first name, surname, last name, Personal ID
    - 3.4.5.1.1. The search by Personal ID is executed in the entire database.



3.4.5.2. Registration data for legal entities – part of their name, Company ID, Tax ID

3.4.5.2.1. The search by Company ID is executed in the entire database.

#### 4. Services

##### 4.1. Service Management

4.1.1. PowerPro maintains one-time and periodic services

4.1.2. The system's services are defined as business processes and parameters that are necessary to provide the subscriber with the end service.

4.1.2.1. The business processes are a sequence of operations, which must be performed by the system itself or external factors.

4.1.2.2. The product features a user interface for inputting the necessary information (parameters) and reporting the results of the performed activities.

4.1.2.3. The service configuration is a set of key parameters determining the limits of service operation. There is a user interface for entering the specific parameters for each subscription (MAC address, Set-Top-Box number, etc.)

##### 4.2. Regioning

4.2.1. The system allows for a region to be assigned to each subscription (service) with the purpose of geographical or other segmentation. The regions are used as an identifier, by which to limit the access to information and number of activities that can be performed by the operators.

##### 4.3. Subscription Management

4.3.1. Each contract is charged a subscription for periodic services or registration for providing one-time services.

##### 4.3.2. Subscription Status

4.3.2.1. Active

4.3.2.2. Temporarily Inactive – the service is discontinued by the subscriber's choice with an option to be resumed

4.3.2.3. Suspended Due to Non-Payment – the service is suspended because of the subscriber's failure to pay their duties. The transition to this status can be manual or automatic

4.3.2.4. Discontinued Delivery – This is an intermediate state between Active and Suspended Due to Non-Payment, which is managed by the system for automatic interruption. During this status, the service delivery is suspended but the financial subsystem



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continues to consider the service Active and hence, all the duties incurred are payable.

4.3.2.5. Canceled – the service is canceled by the subscriber’s choice

4.3.2.6. Changed – a status reflecting the transition to another tariff

4.3.3. There is a function for executing the transition from Active to any of the above-mentioned standings as well as for resuming the status from Temporarily Inactive or Suspended Due to Non-Payment to Active.

4.3.4. The termination of service is an irrevocable process.

## 5. Module ‘Billing’

5.1. Setting parameters of the tariff for each service

5.1.1. The system assigns basic parameters, such as duration, start of reporting period, Value Added Tax, price of the service, parameters for advanced discounts, etc.

5.1.2. It is possible to add modules to the tariffs. These modules allow the addition of more rules to the calculation process and the rules enable the implementation of change in computing the subscribers’ duties.

5.2. Promotions

5.2.1. The system allows for defining promotions of individual services, which can include a requirement for continuity of the billing process (annual contracts) and discounts for clients (certain periods, during which the client pays a lower subscription).

5.2.2. The promotions can be limited based on duration and services, along with which they can be provided.

5.2.3. Backward tracking of promotion discounts

5.3. Package discounts

5.3.1. Packages are a set of individual services organized in groups.

5.3.2. In computing a client’s duties, if their set of subscriptions matches any of the packages, the services are grouped and a package price with the corresponding services is calculated.

5.3.3. There is a function for package modeling and describing the type of the discount granted.

5.3.4. It is possible to form packages for both new and past due amounts. This option is set for each package individually.

5.3.5. Backward tracking of the granted discounts by duties and recorded payments.

5.4. Cash desks and cash payments



- 5.4.1. When collecting revenue in cash, each cashier register defined in the system charges the amounts received in the cash-box.
- 5.4.2. Cash book – provides detailed information about the operations that are performed in each cash-box (revenues, expenses, collection)
- 5.4.3. Report for a cash-box status at a given time (Balance, Revenues, Expenses, Collection, Running balance)
- 5.5. Deposits and Credit Limits
  - 5.5.1.1. The program allows for charging a deposit, which must be paid at the service activation. The deposit is added to the subscriber's account through credit-order and can be returned to the client after discontinuing the service.
  - 5.5.2. Credit limits can be set for each post-paid service and when certain levels of credit are reached, it is possible to activate a task of the service business process.
  - 5.5.3. The system supports an option for increasing the credit limit through deposit for the corresponding service.
  - 5.5.4. The product maintains subordinate services that can be paid from the client's account after paying a deposit for the major service or through credit. The system supports

tracking of the accumulated amount due. Services of this type are Pay per View, which is part of a main service for a digital TV.

- 5.6. Payment Registration
  - 5.6.1. The system supports the following forms of payment
    - 5.6.1.1. In Cash
    - 5.6.1.2. In Cash by Credit-Order
    - 5.6.1.3. Bank Money order
    - 5.6.1.4. Additional modules help maintain mass payments through E-Pay, National Savings Fund and United Bulgarian Bank
  - 5.6.2. There are methods for fast payment registration through bar code scanners
- 5.7. Invoices and accounts
  - 5.7.1. The system has a built-in support for generating invoices and accounts
    - 5.7.1.1. Invoices and accounts are created according to pre-defined criteria by client or service type
    - 5.7.1.2. Invoices can be produced at the moment of payment when the paid duties have not been included in another invoice or account



#### 5.7.2. Invoice Printing

5.7.2.1. At the moment of payment at the cashier desk on a matrix printer

5.7.2.2. Export in a PDF format for subsequent printing on a laser printer or press

5.7.2.3. There are markers for automated setting in envelope of the printed accounts/invoices

5.7.3. In case of changing duties, which have been previously invoiced, the system automatically creates revised documents (Debit or Credit Notice).

5.7.3.1. At suspension due to non-payment, the system produces Credit Notices for generated invoices/accounts

5.7.3.2. In case of destroying a package, the program creates a Debit Notice for the amount difference

5.7.4. The system generates a Value Added Tax register according to the requirements in the regulations under the Value Added Tax Law. The register can be imported into a different accounting software

#### 5.8. Cash Registers

5.8.1. The system maintains integration with cash registers under RS-232

5.8.2. The supported platforms for a client's program are: Windows 32/64 bit, Linux 32/64 bit, MacOS X

5.8.3. The system supports cash registers of the Daisy and Datecs companies

5.8.4. It is possible to develop drivers for other cash registers if there is a description of the communication protocol.

#### 6. Reports

##### 6.1. Operational Reports

6.1.1. There are operational reports, which retrieve lists of subscribers

6.1.1.1. Status reports (active and inactive)

6.1.1.2. Reports for revenues and amounts due

6.1.1.3. Reports by form of payment – cash, Revenue Cash Order and bank transfer

6.1.1.4. Individual reports for a particular client

6.1.1.5. Reports for billing companies

6.1.2. The volume of information produced by the report is configured according to different criteria (service, region, client group, operator, period)

##### 6.2. Financial Reports



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- 6.2.1. Report for movement of subscribers by groups of services and regions.
- 6.2.2. Report for generated revenues by form of payment
- 6.2.3. Report for expected and actual revenues
- 6.2.4. Cash flows (cash, bank, individuals and legal entities, etc.)
- 7. Services without end devices
  - 7.1. Analog Cable Television
    - 7.1.1. The product supports information about the number of active TV receivers
    - 7.1.2. The system allows for charging additional duties according to the number of TV receivers.
  - 7.2. Rents and other.
- 8. Services involving management of end devices
  - 8.1. Cable modems
    - 8.1.1. The system maintains cable modems by the following specifications: DOCSIS 1.0, 1.1 and 2.0. DOCSIS 3.0 management is in development phase.
    - 8.1.2. The program supports configuring with individual configuration files for each cable modem or with common configuration files depending on the service and installed version of DOCSIS from the cable modem.
  - 8.1.3. The product sustains a completely dynamic model of management of the address domain (IP addresses) for cable modems and end devices connected to them.
  - 8.1.4. The system uses DHCP server under Linux. The product also supports integration with BIND for Dynamic DNS with the purpose of providing a static host name for the end clients.
  - 8.1.5. In the standard set of service parameters, the system assigns only a MAC address to the cable modem so that the service can be activated.
  - 8.1.6. The product maintains setting of filters for the cable modems (IP , LLC, SNMP Access)
  - 8.1.7. The software features a user interface for defining of Service Flow and the corresponding packet classifiers for DOCSIS 1.1/2.0
  - 8.2. Digital Television
    - 8.2.1. The program supports management of digital receivers through Conax and Griffin's systems for Conditional Access
      - 8.2.1.1. Conax Support



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- 8.2.1.1.1. There is a full history of all commands given to CAS for each card
- 8.2.1.1.2. The system maintains a function for pairing and sending messages to the end client, which can be displayed on a TV receiver.
- 8.2.1.1.3. Griffin CAS support
- 8.2.1.1.4. Possibility to develop support for other CAS systems.
- 8.3. LAN Internet
  - 8.3.1. As part of the system there is LAN gateway solution that does the traffic shaping and accounting. DHCP provisioning is part of the main Internet functionality
  - 8.3.2. There is an option to integrate with an external management system, which is responsible for limiting the speed of the service provided
- 8.4. Telephone Services – in development stage
  - 8.4.1. Provisioning is in development phase
  - 8.4.2. The system supports a database with the numbering plan provided by the regulator
  - 8.4.3. In determining the tariffs, the software can set talk prices by prefixes and specific numbers
  - 8.4.4. The product maintains grouping of the prefixes in the view of generating a breakdown
  - 8.4.5. There is an option to support ported-in (transferred from another operator) numbers
  - 8.4.6. The system maintains post-paid tariffs. The support of pre-paid tariffs is built in the scheme for processing of CDR.
- 9. Automated suspension and activation of services
  - 9.1. The software supports automated discontinuation of the delivery of services, for which this is possible.
    - 9.1.1. Cable and LAN Internet
    - 9.1.2. Digital Television
    - 9.1.3. Telephone Services
  - 9.2. The automatic discontinuation suspends the service delivery and a certain behavior can be triggered depending on whether the use is based on a fixed-term or termless contract (See Promotions).
  - 9.3. The system supports a function for redirecting the requests for Internet services to a page with an alerting message that the service is suspended due to non-payment.
  - 9.4. Automatic activation occurs when payment is received for a discontinued service due to non-payment. The system automatically generates amounts due for clients whose services are suspended because of failure to pay within the current reporting period.





## 10. Services Upgrade

10.1. The system allows upgrade (cable or LAN Internet) of a tariff through a Website intended for end clients. In addition, the software enables inclusion of additional services (additional packages for digital television) for short periods (within the time frame of the paid subscription)

10.1.1. The upgrade itself is the action of increasing the speed of Internet access or including an additional package, such as HBO

10.1.2. A fee for the upgrade is charged to the client's contract as a one-time service, which they need to pay for later.

10.1.3. The system allows payment from a previously paid deposit or by credit up to a certain limit

10.1.4.

## 11. Warehouse

11.1. Warehouse for merchandise

11.1.1. Cable modems, cards and receivers for digital TV

11.1.2. Reports for tracking the end devices provided for use by clients

11.2. Warehouse for materials

11.2.1. Cables, amplifiers, connectors, etc.

## 11.3. Set of Reports

11.3.1. Movement of commodities and materials between warehouses

11.3.2. Merchandise inventory and sales

11.3.3. Material inventory at a given time

## 12. Ticketing

12.1. The product supports a specific work flow for each ticket type. This allows the definition of a specific set of conditions depending on whether the ticket is for opening a new service or reporting a failure.

12.1.1. It is possible to develop other ticket types by the client's choice

12.2. The system maintains limited access to tickets based on their condition. The restriction can be set at the user level or a group of users.

12.3. Requests for installing services

12.3.1. The requests can be registered with both persons that do not exist in the database and persons that are already registered as clients.

12.4. Breakdowns



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- 12.4.1. Breakdowns are registered both with a client and a specific service from a client's contract.
  - 12.5. There is a user interface, which is convenient for performing fast tasks and allows quick and easy access to different functions for work with clients and services directly from the ticket list.
  - 13. Monitoring
    - 13.1. There is a built-in support for monitoring end devices based on ICMP and SNMP protocol
    - 13.2. The system maintains graphic visualization of the collected information about different types of end devices
      - 13.2.1. Cable modems – levels of signal, signal – noise relationship, traffic
        - 13.2.1.1.1. Other net devices – interface traffic
    - 13.3. Integration of module for monitoring with ticketing – automatic opening/closing of a modem ticket if any of the parameters goes far beyond preset limits
  - 14. Web Interface for Client Access
    - 14.1. The user interface for client access provides information about a client's current subscriptions and respectively, amounts due
    - 14.2. This interface enables the client to order subscriptions for services upgrade
    - 14.3. It is possible to perform additional functions by task in the implementation process.
  - 15. Mobile collectors – in development stage
    - 15.1. There is a plan for expansion involving support of mobile collectors, which can collect fees at clients' homes through PocketPC and fiscal printer.
    - 15.2. After the work day, the mobile collectors synchronize the operations performed during the day and receive information about the forthcoming work on the next day.
- Besides the above-mentioned functions, it is possible to develop an additional procedure that the client needs as well as to improve existing functions. Integration with systems and devices that are not currently offered can be developed further in the process of system implementation.
- The software product is designed entirely in Java programming language and is based on the Java 2 Enterprise Edition (J2EE) technologies. The Java language allows flawless support of all modern operating systems (Windows XP, Windows Vista, Windows 7, Windows



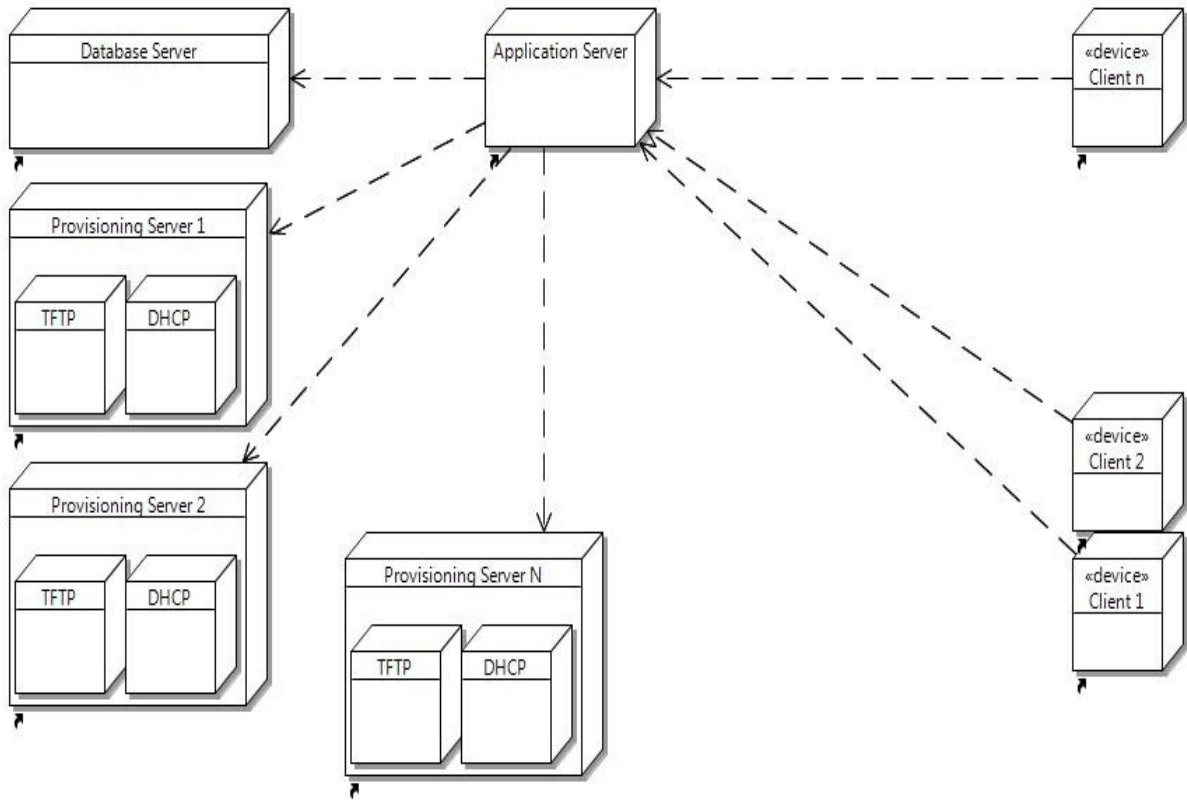
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Server 2003, Windows Server 2008, Linux, Solaris). The system's business logic is built upon the Application Server JBoss 4.2.x (open source product).

The supported databases are Oracle9i or later and Firebird 2.1 (Open Source product) for smaller installations. It is possible to transfer to another server for databases and an Application server. The use of Open Source products allows lower end-user price due to lack of necessity to purchase additional licenses.

Currently, there are four installations of the software in Bulgaria, Serbia and Macedonia. All installations involve the use of Linux CentOS for server OS and clients under Linux (various distributions) as well as different versions of Windows.



Deployment structure