



Intelligent and Secure 3D-Configuration of Products in Electronic Shop Systems

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Overview

- INTELLECT members of the consortium
- INTELLECT: Innovation and approach
- Functionality of the INTELLECT modules
- Implementation goals
- Conclusions and Summary

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Members of the INTELLECT consortium

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INTELLECT Consortium

INTELLECT IST-1999-10375

Germany

Austria

France

Greece

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ANECON

Atlantide

Developers



INTERSET

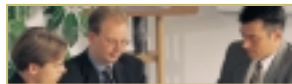
End-Users

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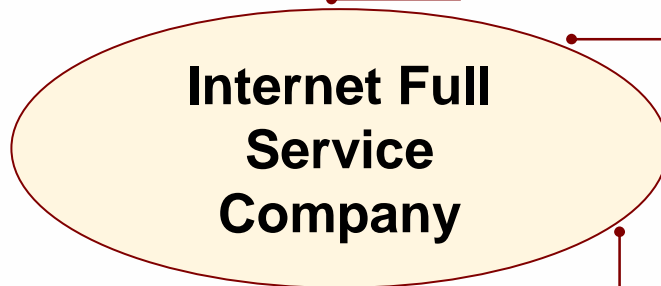
WWL vision2_market



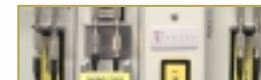
WWL consults as a **Management Consultancy**



WWL arranged as a **Advertising Agency**



Internet Full Service Company

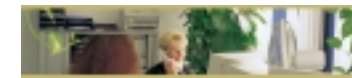


WWL support the technique as a **Provider**

WWL programs as a **Software Developer**



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WWL develops Network Solutions as a **System House**

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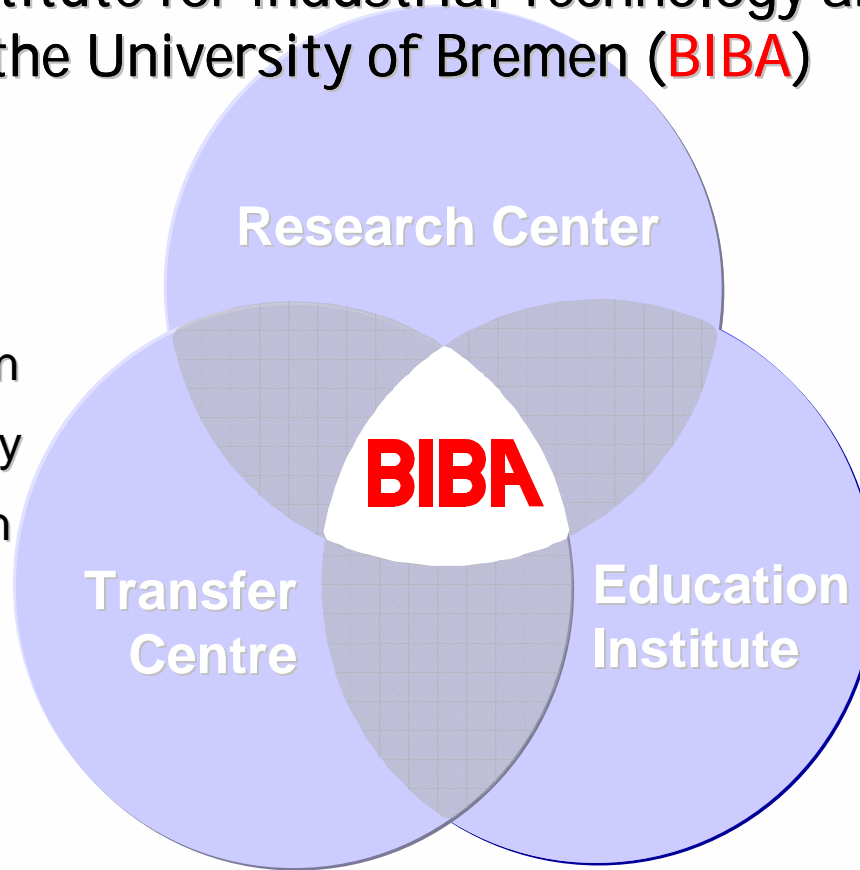




Bremen Institute for Industrial Technology and Applied Work Science at the University of Bremen (**BIBA**)

Fields

- Technology
- Organisation
- Methodology
- Qualification



Research

- Basic Research
- Pre-competitive Research
- Competitive Research
- Retrospective Research

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regional

national

european

international





INTELLECT innovation and approach

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Innovation

Current eShops

- Simple Products
- Only simple Configuration
- Limited Product Presentation
- Limited Interactivity



INTELLECT

- Complex Products
- Variant Configuration
- VR Product Presentation
- Hands-On Product

Configuration and
Presentation



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The INTELECT Approach

VR Module

Modular architecture

Configurator

3 distributed server modules (EJB)

Distributed BackOffice Integration

Helpdesk

Browser based Client
Common Database

Order-Processing

eShop Module

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Modules and functionality of INTELLECT

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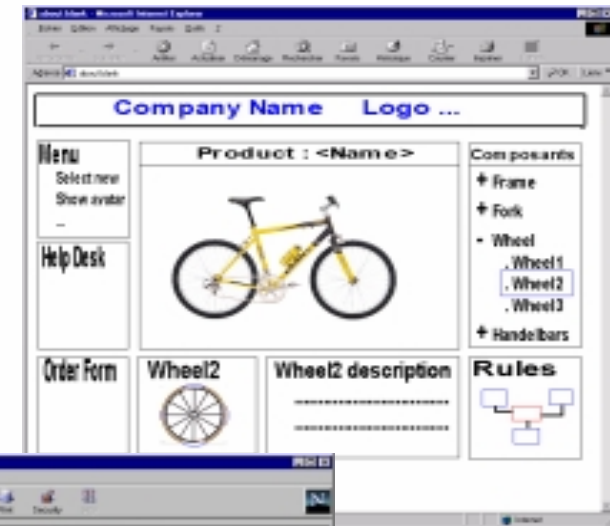




eShop

Main User Interface

- Product Catalogue
- Container for VR and Helpdesk
- Modularised Subshops
- User Profiling
- Community Services



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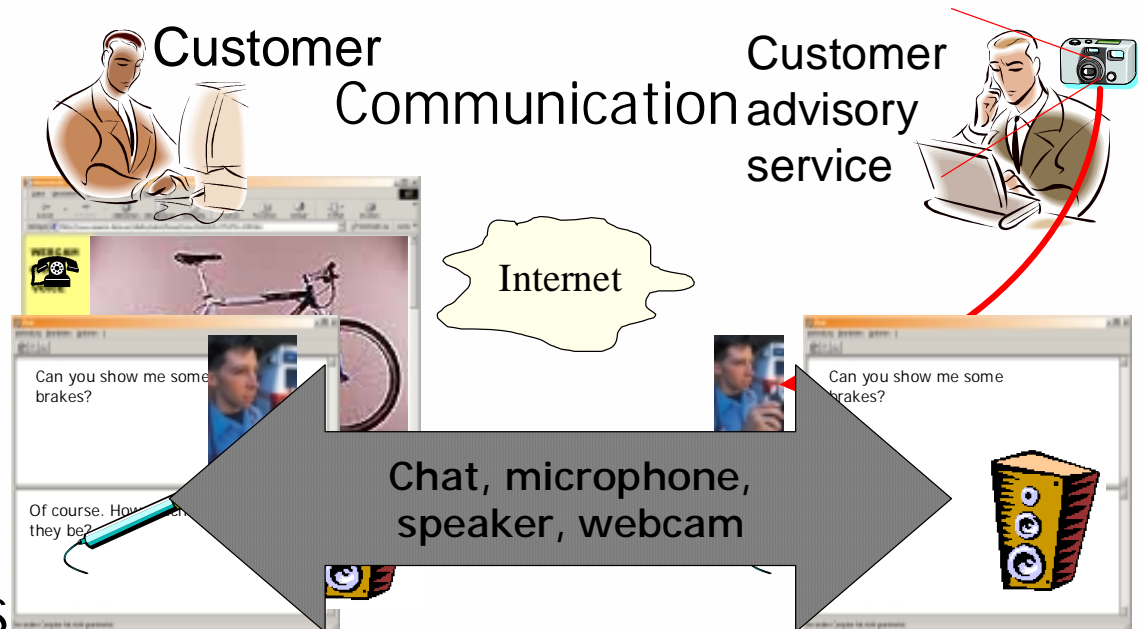
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Helpdesk

Virtual Sales/Support Desk

- IP/video conferencing
- Page mirroring
- Collaborative work
- Community services



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IP based Communication

- H.323 is the ITU standard which describes how a flexible, real time, interactive set of multimedia communication can be exchanged via TCP/IP
- T.120 is the ITU standard which handles multipoint data delivery, interoperability, reliable data delivery, multicast enabled delivery, network transparency and scalability

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Help Desk / CRM

- The aim is to improve the on line shopping experience by adopting advantages of a real shop, especially in situations where the customer needs consulting service
- The on line user assistance combines help desk and customer relationship management (CRM), e.g. community building
- It uses IP based communication which is integrated into the web page to avoid discontinuity of media

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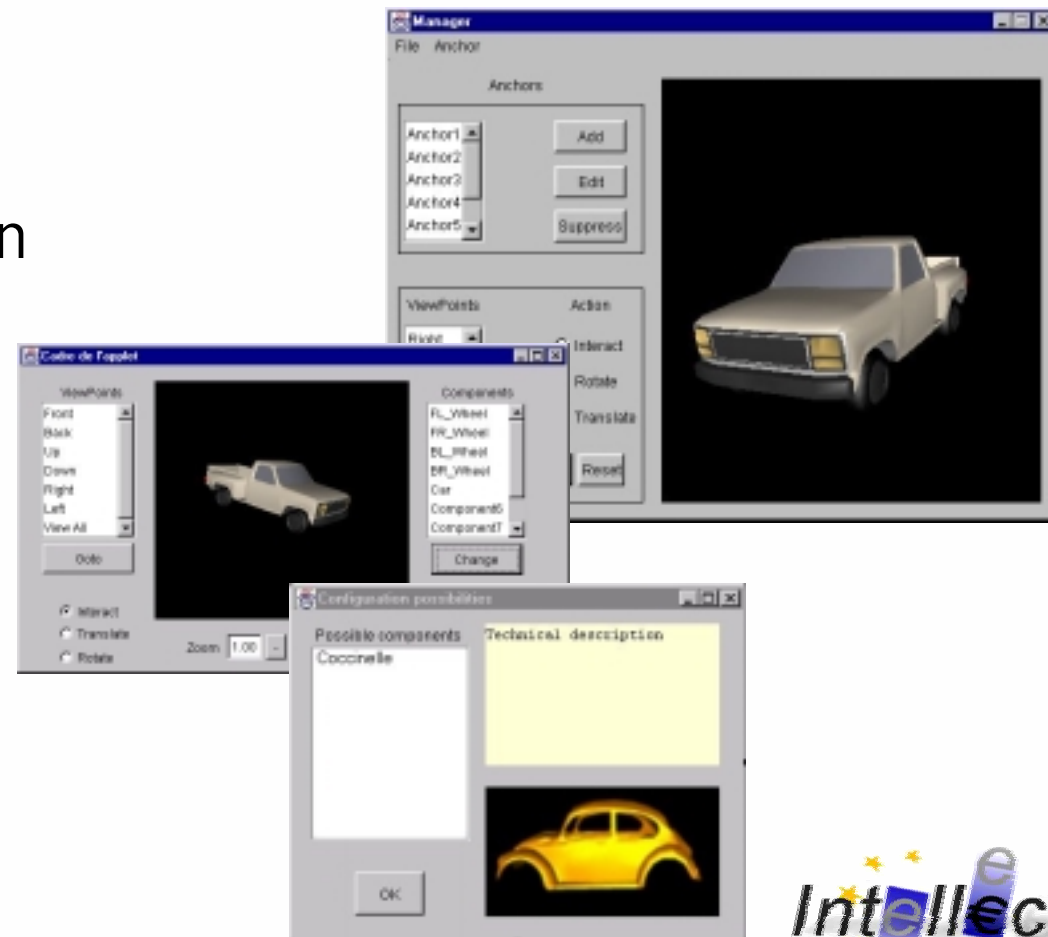




Virtual Reality

Configurator interface

- 3D product visualisation
- Navigation/Interaction
- Avatar visualisation
- 3D Animation



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Virtual Reality (VR) / 3D

- A synthetic world obtained by computer simulation
- Allows real time simulation and interaction via several senses: seeing, hearing, touching
- Good immersion requires motion capture, stereoscopic vision, force and tactile feedback, sound, interaction

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Limitations of Virtual Reality

- Good immersion needs a lot of expensive material, e.g. stereoscopic glasses, therefore VR in the Internet is limited to 3D representation and interaction with mouse or keyboard
- VR is limited due to quantity of calculation and data needed. 3D worlds take a long time to download and cannot have such a high quality as in a local application

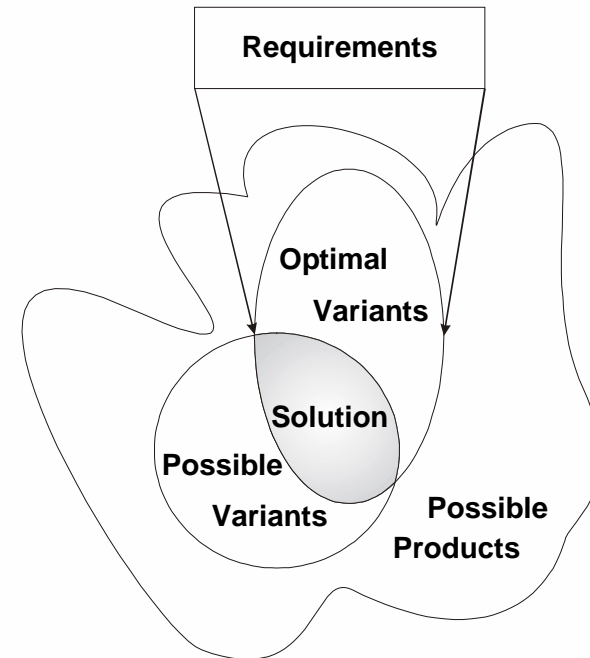




Configurator

Configuration of product variants

- Free exchange of components
- Interactive configuration
- Wizards based on logical or "soft" criteria
- Product tailoring





Configuration Method

Classification (object oriented)

- ❑ Structured based configuration method that makes use of existing specialisation hierarchies, e.g. component categories

Constraints (rules based)

- ❑ Dependencies between components, that can not be modelled using traditional classification methods, e.g. make sure that certain attributes only get values from a predefined range

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Configuration Products

- Nowadays configuration is part of software which supports the production process such as ERP (Enterprise Resource Planning), PDM (Product Data Modelling) or DPM (Decentralised Production Management)
- eShops or Web related technologies do not possess any comparable functionality

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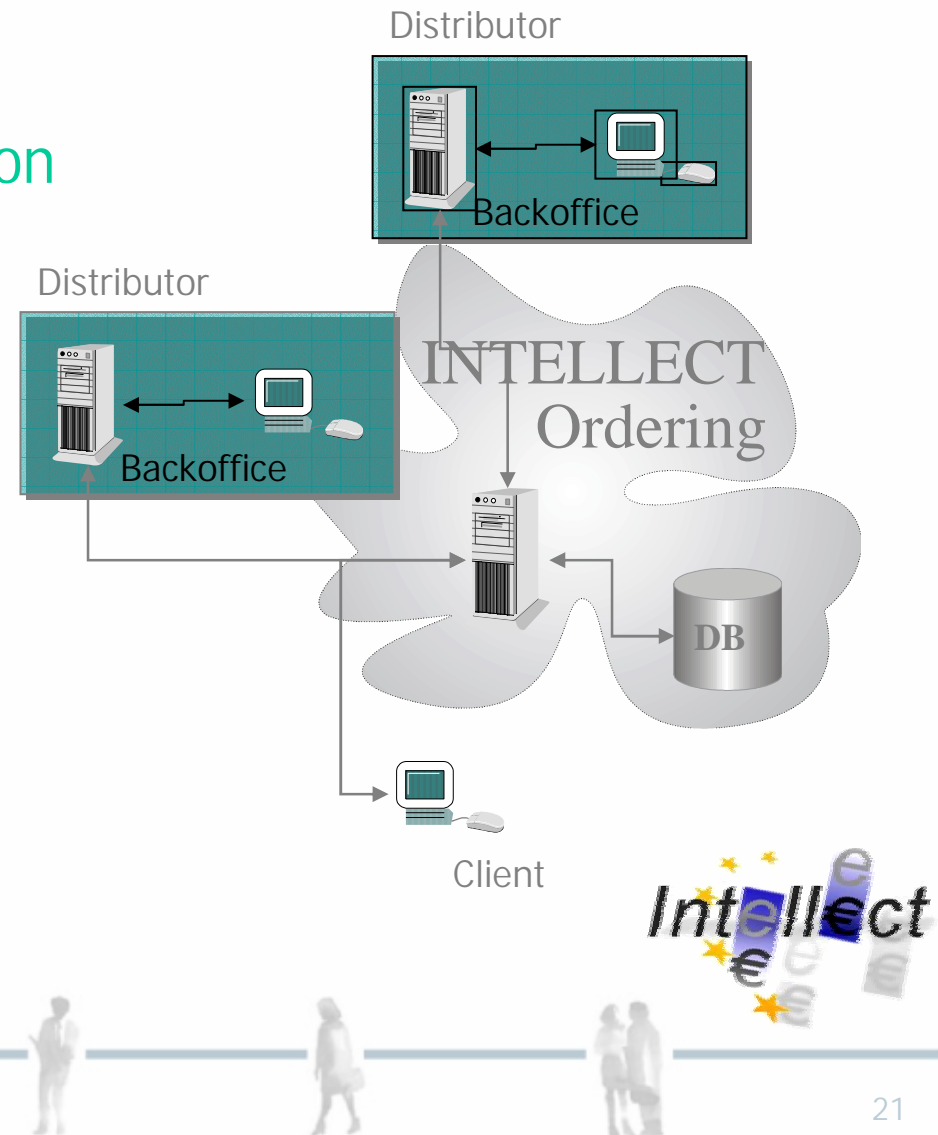




Order-Processing

Distributed BackOffice Integration

- Distributed communication infrastructure
- B2B and B2C support
- provide different order views





Order Processing

Components of the order processing are:

- ❑ a well defined information flow in the merchant's back office
- ❑ communication over different media:
 - ④ between different parties (consumer, merchant, business partners, suppliers, ...)
 - ④ between different back office systems, which have to be integrated (legacy systems, accounting software, fax, mail system, ...)

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Order Processing Systems

- On the lower end most eShop solutions already include a simple order processing
- On the high end such tools enter the area of workflow tools which handle tasks, procedural steps, organisations and people involved, required input and output
- Benefits of automated order processing are:
 - ❑ higher reliability,
 - ❑ less personnel costs,
 - ❑ quicker execution,
 - ❑ state tracking for merchant and customers

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Implementation Goals

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Implementation Goals

- Open Standards
 - Maximum Interoperability
 - Internet Browser technology
 - Java, EJB, Java3D, VRML, XML/XSL
- 3rd party tool integration
- Security implementation
 - Requirements
 - Realization

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Open Standards

- VMRL (Virtual Reality Modeling Language) scene description and product/component models
- Client side Java Applet utilising Java3D API
- Server side Enterprise Java Beans (EJB)
- Photomodeling for quick and efficient model creation
- XML for data exchange
- XML/XSL for configurable layout
- XML/SOAP based back office integrator

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Third party tool integration

NetMeeting fulfils all the basic requirements needed for a consumer agent communication over different media:

- ☐ Freely available
- ☐ Distributed with MS-Windows 2000
- ☐ Supports text chats, Voice-over-IP (VoIP), Video
- ☐ Conforms the standards H.323 and T.120 (version 2.3).
- ☐ Highly configurable through scripting and integration into web-pages
- ☐ Effectively handling for the customer
- ☐ There is already a third party market

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Secure Communication

- Requirements
 - ❑ Protection against eavesdropping and unauthorised manipulation
 - ❑ Digital signature can be used for authentication and non repudiation
 - ❑ Certification Authorities (CAs) administer public keys and certificates
- Solution for INTELLECT: SSL (Secure Socket Layer) uses encryption to protect communication between a web server and a client. It is an integral part of the browser.

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Payment

- Currently only two methods enjoy a wider acceptance:
 - ❑ credit card transactions: the user has to type in his credit card number, which is sent to the merchant via SSL; the merchant then submits the payment to the credit card organisation
 - ❑ cash on delivery: customer pays directly to the deliverer, who advances the amount to the merchant (not possible for downloads)
- Some of the new standards like eCash, SET, Mondex etc. will become more important in the next years. But in the moment it's not sure which one will make it
- INTELLECT will integrate a payment module if it is available and useful

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Summary and Conclusion

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Summary

- eShop system offering interactive configuration of complex Products via a 3D interface.
- Interactive 3D worlds give a better image of the products, and are more entertaining for the customer
- Virtual help desk via video conferencing
- Distributed BackOffice integration.
- Workflow tools based mainly on XML
- INTELLECT is a software based fully on cross platform open standards widely used on the Internet.
- INTELLECT will be scalable and capable of covering requirements ranging from smaller to high end solutions including shopping malls

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Conclusion

- The market for on line shops is growing but in the moment the solutions are expensive or of limited use. There are no shops which can be used as a basis for customised solutions with special features like 3D product presentation, configuration of products and a user friendly interactive help desk
- SIGs are currently being organised in Germany, France, and Greece
- First functional prototypes will start testing at end user sites as soon as possible next year

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<http://www.ist-intellect.com>





Thank you for your attention

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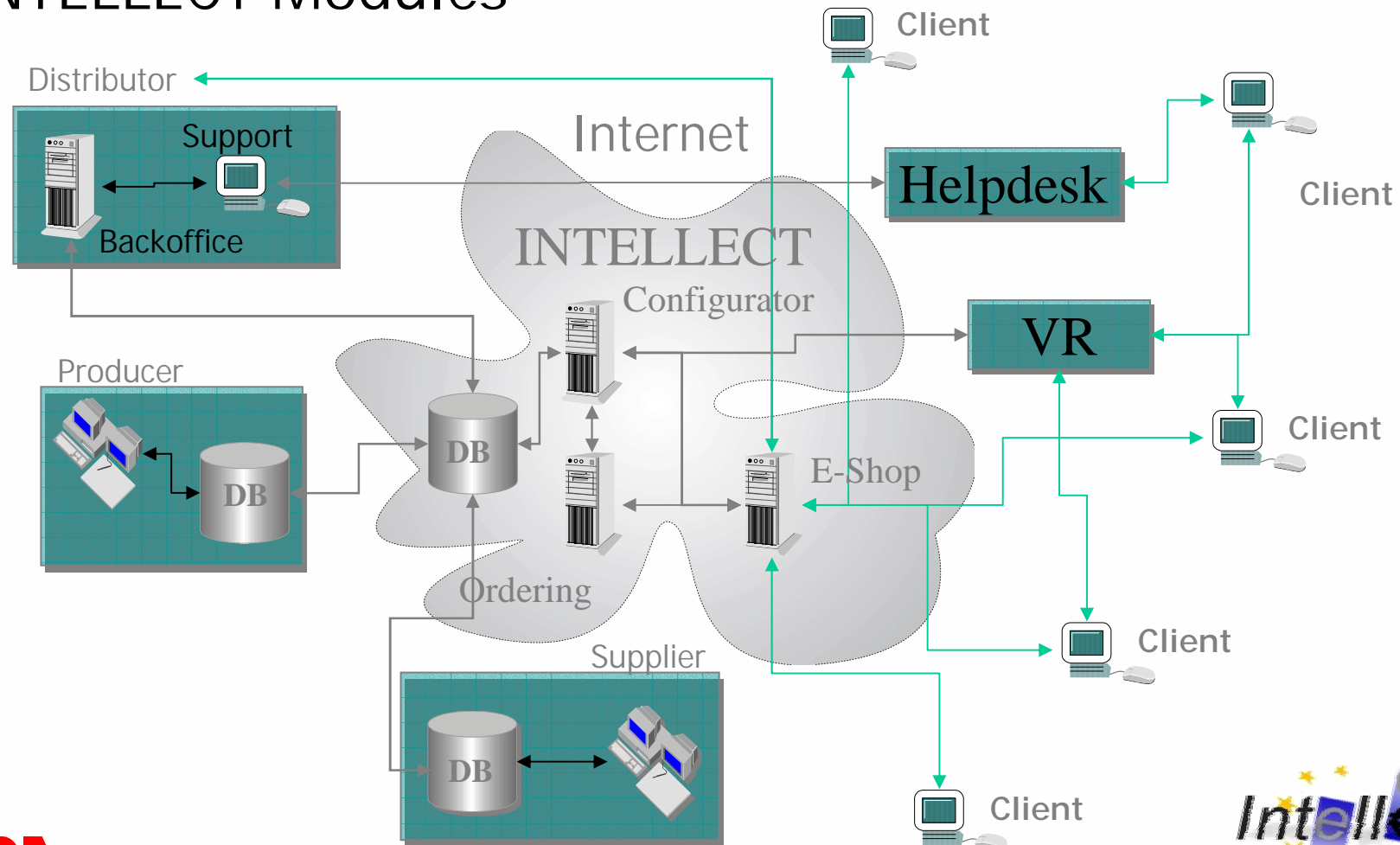
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INTELLECT Modules



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