



PHILIPS

Pinnacle³

Treatment Planning

**Flexible,
intuitive
planning
environment**



Pinnacle³

Flexible, intuitive planning environment

Planning plays a central role in influencing treatment confidence as well as departmental workflow. Delivering sophisticated treatment techniques that are both efficient and reliable can be challenging. Planning is often a very labor intensive, time consuming and operator-dependent process that can produce inconsistent results. Today's advanced radiotherapy departments demand that planning systems provide the accuracy and flexibility needed to enhance their productivity.

Pinnacle³ Applications

Designed to meet diverse clinical needs

Speed up planning

Workflow Automation



Auto-Planning

Treat with confidence

Planning and Dose Computation



SmartArc



Proton Planning

Increase throughput

Contouring, Simulation, and Plan Review



Model-based Segmentation



SPICE



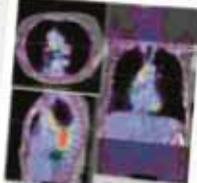
Dynamic Planning



3D Planning



IMRT w/ DMPO



Syntegra



AcQSim³

Pinnacle³ treatment planning has earned a 20+ year reputation for performance, reliability, and intuitive workflow.

The comprehensive system is designed to improve quality and cost-effectiveness, and provides confidence to users and departmental administrators by addressing three key needs: efficiency, accuracy, and scalability. Designed to reduce planning and re-planning time and enhance dose accuracy, Pinnacle³ provides the foundation to help your facility offer high-quality treatments while controlling costs.

Key advantages

Efficiency

- Reduce planning and treatment times

Accuracy

- Enhance consistency and quality of planning and treatment

Scalability

- Adjust the performance of centralized computing to the needs and size of your institution

Efficiency

Reduce simulation and planning times

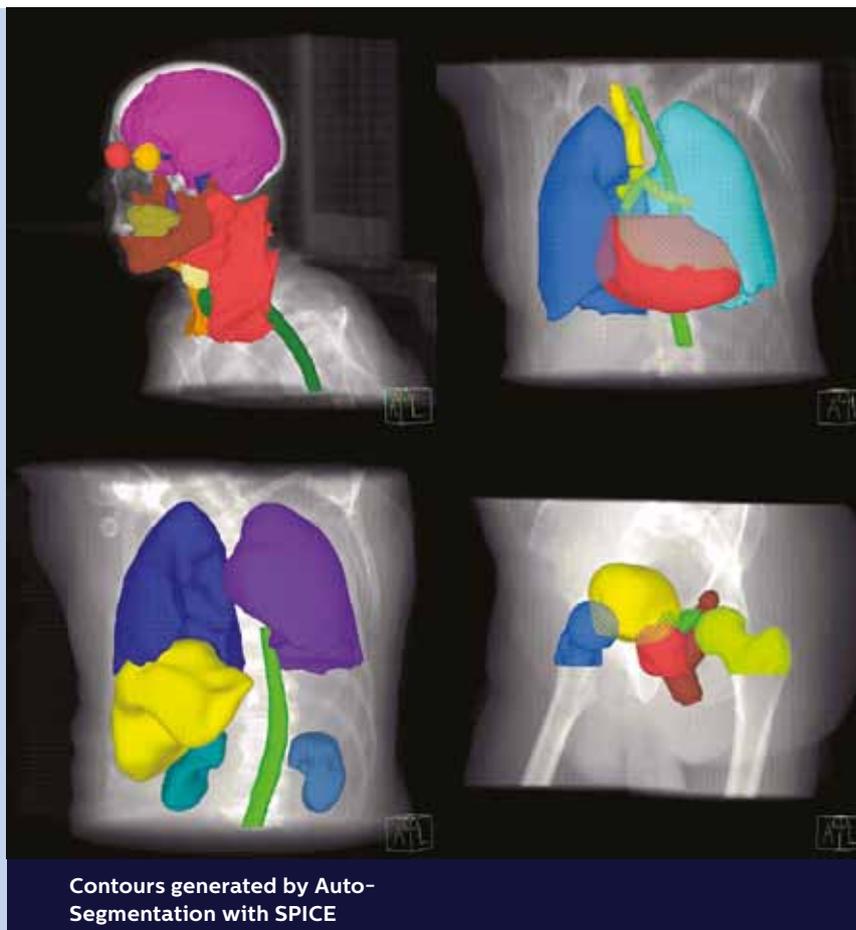
Treatment planning is often labor-intensive, time-consuming, and can produce inconsistent results. Pinnacle³ provides a wide range of tools to enhance the quality and efficiency of 3D and 4D contouring and simulation using multi-modality images. Pinnacle³ visualization and automation tools simplify these tasks while generating high quality results, leading to the creation of enhanced treatment plans.

Auto-Segmentation with Smart Probabilistic Image Contouring Engine (SPICE) and Model-Based Segmentation (MBS) automated 3D and 4D contouring

SPICE and MBS complement each other to streamline the contouring process. Both applications use atlas-based segmentations to generate 3D contours.

MBS offers the ability to delineate and create personalized libraries to store anatomical and non-anatomical structures. It also provides the ability to automatically generate the ITV using 4D CT image sets.

SPICE enables auto-contouring of multiple patient images simultaneously with limited user intervention. Contouring calculations run in the background, leaving the user free to pursue other tasks.





Syntegra

Multi-modality image fusion

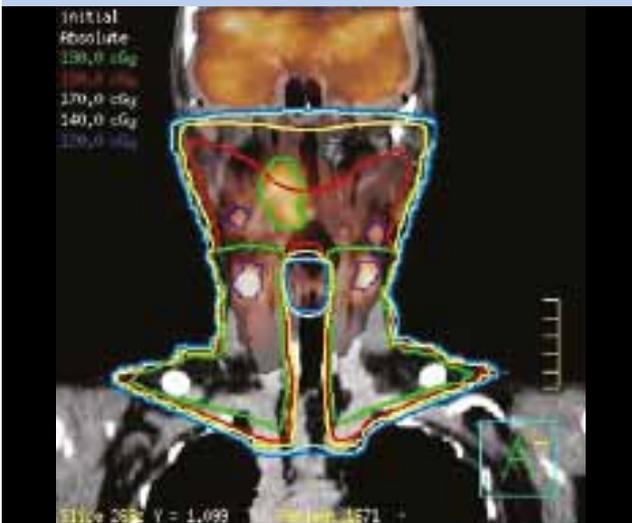
Pinnacle³ integrates Syntegra image fusion to provide confidence in multi-modality simulation and contouring. Multiple included algorithms enable high-quality fusion between simulation CT, MR, PET, Cone Beam CT and more. Syntegra aids with target and critical structure delineation, and improves the plan review process by showing dose distribution on multi-modality images.

AcQSim³

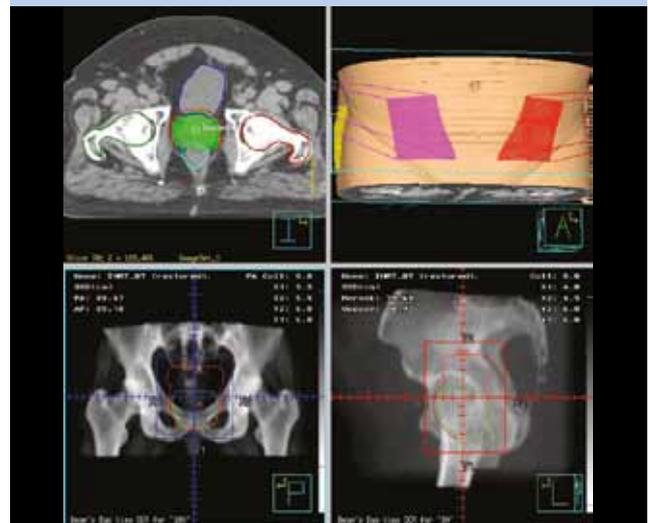
Enhanced visualization for virtual simulation

AcQSim³ provides a wide range of tools for virtual simulation. It can either be used as an integrated component of Pinnacle³, or act as a standalone simulation system:

- Connects to lasers to enable patient marking
- Provides high quality visualization with DRRs, DCRs and virtual fluoroscopy to help with isocenter placement
- Supports multi-phased CT images to enable 4D simulation.



Dose distribution displayed on fused CT and PET images



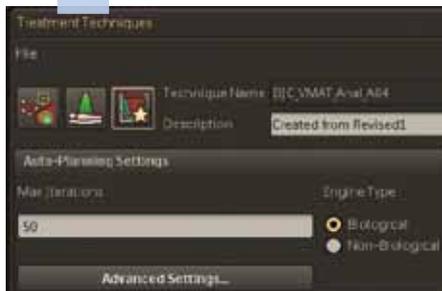
Enhanced visualization with DCRs (Digitally Composite Radiographs)

Auto-Planning

Accelerated IMRT & VMAT planning

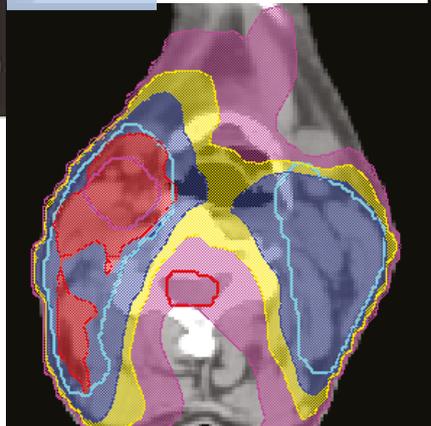
Auto-Planning requires 3 simple steps to generate a deliverable plan. Only anatomic contours are required to get started.

1 Select
Treatment Technique



Automates repetitive data-entry for efficiency and standardization.

2 Run
Auto-Planning



Generates high quality plans at the first pass, reducing planning time.

3 Evaluate
with Scorecard

OID	Type	Result
PTV_5040	Min DVH (%)	Met
PTV_4300	Min DVH (%)	Not Met
SmallBowel	Max DVH (cm ³)	Met
SmallBowel	Max DVH (cm ³)	Met
SmallBowel	Max DVH (cm ³)	Met
SmallBowel	Max Dose	Met
Femur_L	Max DVH (%)	Met
Femur_L	Max DVH (%)	Met

Simplifies and standardizes the plan approval process.

Key advantages

- Reduces the total time required to create an IMRT or SmartArc plan
- Replaces exhaustive manual data entry to just a few clicks
- Enhances plan consistency and quality
- Simplifies and standardizes the plan approval process

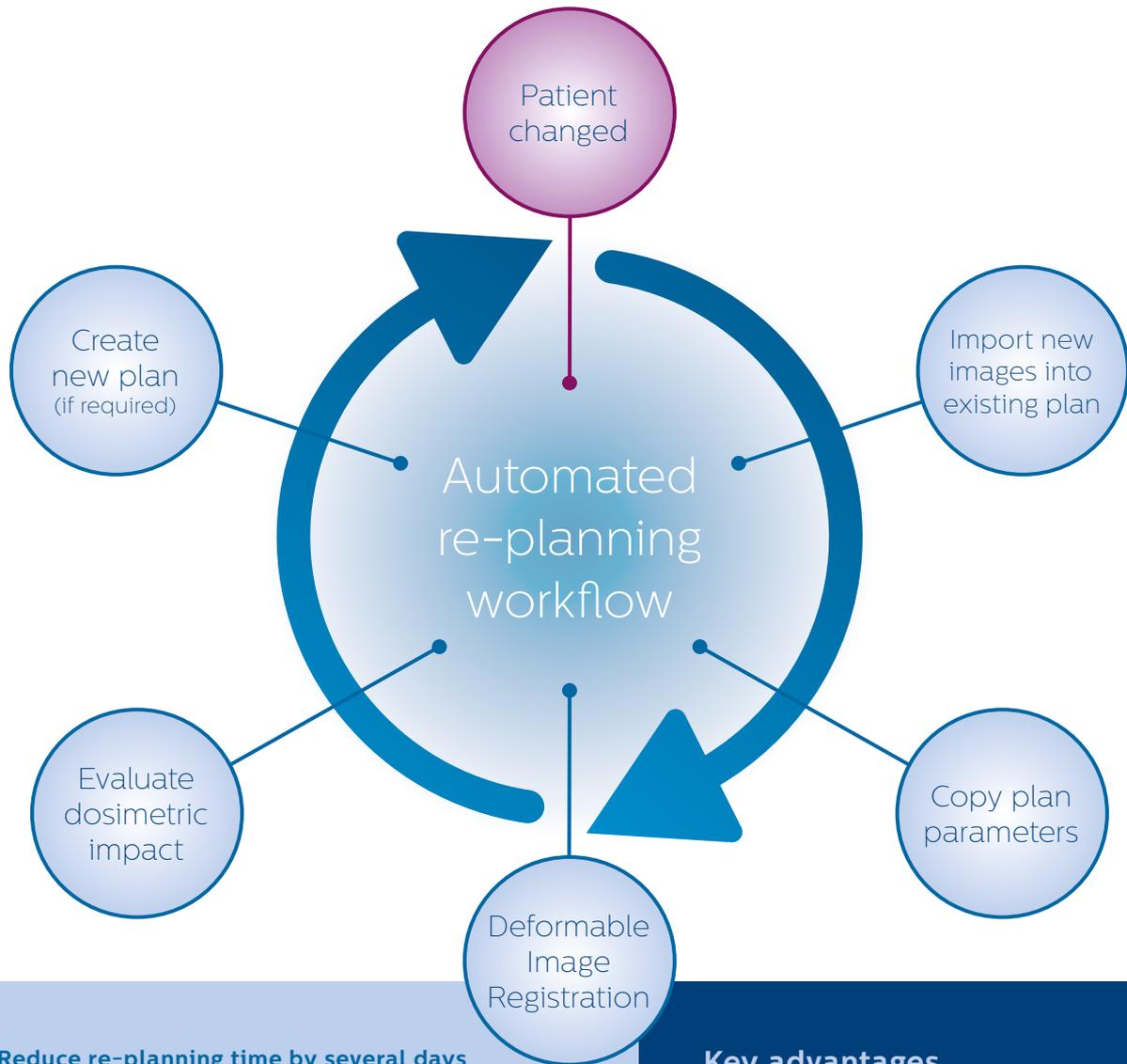
Reduce the total time required to create an IMRT or SmartArc plan

IMRT and VMAT are often labor-intensive processes which can generate inconsistent results.

Pinnacle³ Auto-Planning is designed to simplify and accelerate IMRT and VMAT planning. It has smart automation tools that enable the user to generate high quality plans quickly with limited intervention.

Dynamic Planning

Fast assessment and automated re-planning



Reduce re-planning time by several days

Pinnacle³ Dynamic Planning is designed to make treatment adaptation easy. Fast assessment and automated re-planning tools generate at-a-glance information to help monitor treatment efficacy and create new plans with limited user intervention.

In fact, Dynamic Planning can save 6 hours of work for every head and neck re-plan¹. Intuitive evaluation tools allow side-by-side comparison of patient images, visualize the impact of a change in a patient on the original contours, due to weight loss, changes in tumor size, etc.

Key advantages

- Enable fast and comprehensive assessment to determine the need to re-plan
- Facilitate fast and easy plan adaptation with limited user intervention
- Dynamically track the impact of patient changes to treatment plans
- Enhance targeting when planning on patients requiring re-treatments

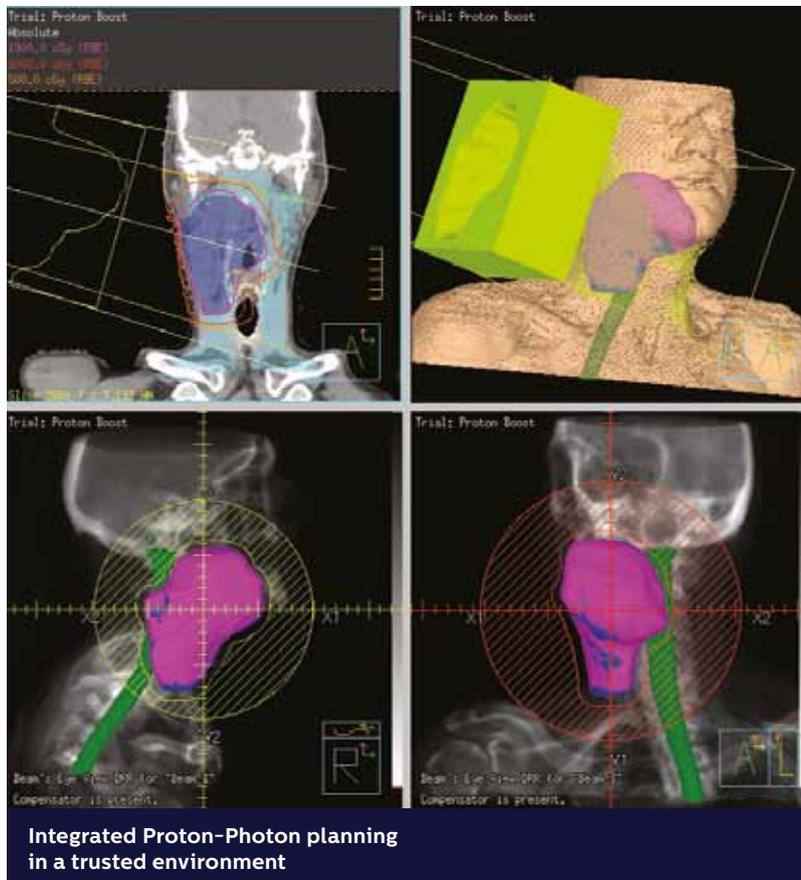
Accuracy

Enhance quality and consistency of photon and proton plans

Key advantages

- Provide confidence for integrated photon-proton planning in a trusted environment
- Accelerate clinical adoption with reduced effort through simplicity of commissioning
- Enhance treatment quality through individually tailored treatment plans

Pinnacle³ is recognized as a trusted treatment planning system for external beam radiotherapy with photons and protons. With a proven track record in accuracy and reliability, it provides confidence to its users independent of the treatment delivery system.



Proton Planning

Integrated proton-photon treatment planning

Pinnacle³ Proton Planning is designed to simplify treatment planning for proton therapy. It integrates proton planning within the conventional external beam treatment planning process.

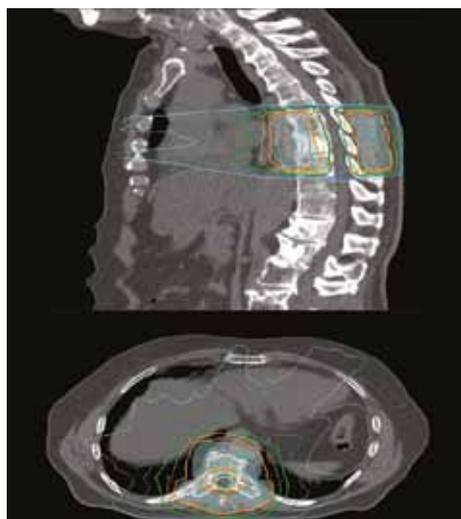
The combination of specially designed tools and the seamless integration with other Pinnacle³ applications offers clinicians the chance to select the appropriate treatment options for the patient and complete their work quickly.



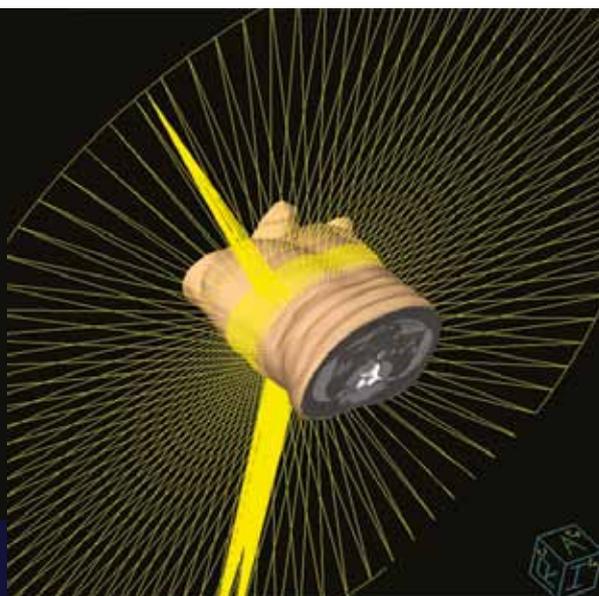
3D Conformal, IMRT and SmartArc High quality plans, whatever the LINAC

Pinnacle³ supports a range of treatment deliveries in conventional radiotherapy - from 3D conformal planning

to IMRT and VMAT, and allows combining multiple delivery techniques into one plan. The Collapsed Cone Convolution Superposition (CCCS) dose algorithm ensures the reliability and accuracy of the results.



Pinnacle³ SmartArc allows constant or variable dose rate deliveries.



Expand treatment capabilities with our advanced treatment techniques

Scalability

Enjoy the benefits of high performance and improved access scaled to your needs

Key advantages

Faster treatment planning

- Improves computation speeds

Improved access

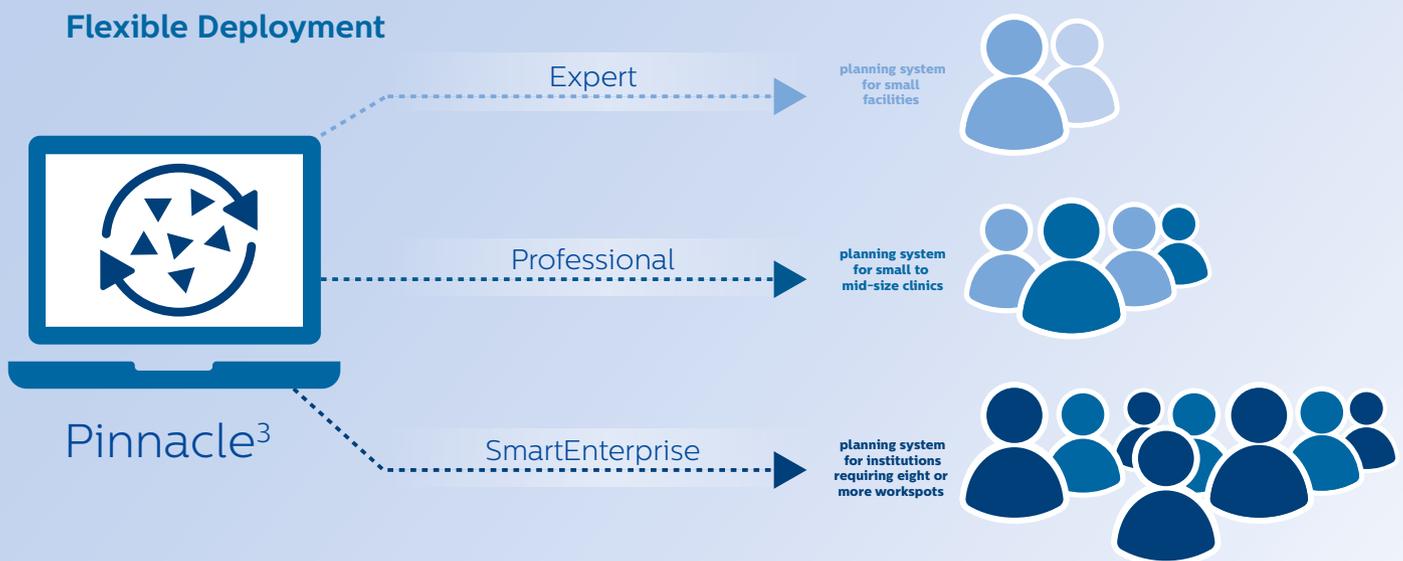
- Access to all Pinnacle³ applications
- Improved performance at lower bandwidth

Reduces operational costs

- Thin clients replace independent workstations: reduces license fees & maintenance needs

Pinnacle³ is offered on three different types of hardware platforms which are scalable to specific needs and the size of your facility. Access your centralized Pinnacle³ radiation treatment planning system from virtually any location within the department or remotely using PCs or MACs*. This eliminates the need for larger bandwidth as well as the high maintenance requirements involved with using dedicated workstations. You get full flexibility, while enhancing accessibility, maintenance, and management of the system.

Flexible Deployment



* Windows: minimum specifications as required by Microsoft Windows 7*, XP or Vista (32 and 64 bit) Microsoft and Windows are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries
Macintosh: OS X v10.6 (Snow Leopard) or later. English, French, German, and Dutch localized keyboards only. Apple, Mac and Macintosh are trademarks of Apple, Inc. registered in the United States and other countries.



Expert

An affordable, high-performance treatment planning system enabling efficient treatment planning for small facilities with one or two radiation treatment systems. Pinnacle³ Expert is powered by advanced Intel Xeon processors, resulting in greatly improved system performance and speed improvements.

Professional

A fast and flexible server-class system to support the Pinnacle³ application for small to mid-size clinics with up to three LINACs. Access is available from an unlimited number of locations, thanks to floating licenses.

SmartEnterprise

Boosts capacity and is ideal for institutions requiring eight or more Pinnacle³ workstations. System scalability is virtually unlimited. Floating licenses expand access and enhance flexibility. Custom configurations are available, using hardware that best meets your needs.

