



LEGACY TRANSFORMATION

As a Duck Creek Platinum Partner, Cognizant can help P&C insurers develop and implement effective plans to migrate decades-old legacy systems seamlessly to the powerful, state-of-the-art Duck Creek Platform.

A. THE CHANGING LANDSCAPE

The insurance marketplace is undergoing enormous changes, with uncertain economic expansion, rising (but still low) interest rates, emerging exposures and an evolving economy. Insurers are spurring more experimentation with new types of products, services and distribution platforms. Online insurers, for example, are generating quotes using automated underwriting processes with sophisticated analytics to assess risk and enable rapid turnaround times.

Insurance companies still running legacy systems face major challenges from outdated architecture that must continuously grow in size and complexity. Migration to new platforms while retaining and extending the value of legacy investments requires system transformation that focuses on tomorrow's marketplace to achieve holistic results. Transitioning to new core systems requires leading practices and business processes, which cannot be implemented with outdated technology. Together, Cognizant and Duck Creek can help carriers achieve holistic results and improve their positions in the market for years or decades to come.

Transitioning legacy systems to Duck Creek solutions provides unique advantages. Duck Creek's core suite comprises billing, claims, policy, rating and data insight software built on a web-enabled, service-oriented, event-based open architecture. All major business functions are integrated in a single platform that provides modern, off-the-shelf features and functionality needed to support your property and casualty (P&C) business transformation and give you a competitive edge over carriers using legacy platforms. With the Duck Creek Platform powering your business, you will gain:

- Support for all P&C lines of business - Commercial, Personal and Specialty. Convergence of all lines of business to one platform streamlines business processes and saves operating costs.
- Customer centricity with Party 360 - A common party repository for all customer information offers a 360-degree view of each customer, as well as personalized customer interactions.
- Omni-channel capability - Enabled by Duck Creek Anywhere, the Duck Creek Platform allows multiple channels or devices to interact with insurers for sales and service, with a single point of change.
- Multi-language options and geographic support.
- A best-in-class rating system - One that can hold an infinite number of algorithms and coverages to ensure that pricing structures fit business needs and can quickly adapt to market changes. (Note: Duck Creek Rating can also be used as a standalone rating solution; it can be seamlessly integrated with existing systems).
- Complete product lifecycle management by business users, through EXAMPLE Product Studio. This wizard-driven approach simplifies rate and product definition changes. It

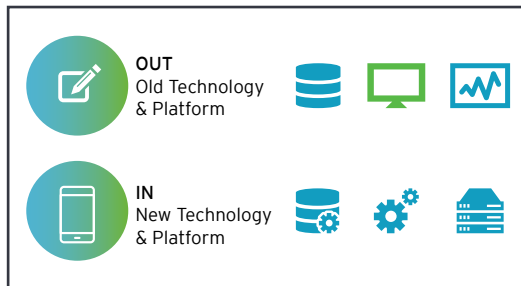
reduces the time, cost and effort required to respond to market changes by transforming product requirements into a completely configured, self-documenting solution.

- Prebuilt templates to jump-start implementation - Duck Creek offers templates for most commercial and personal lines products, which reduce overall product implementation time and cost.
- A highly flexible, open platform that can be extended easily with any external DLL or .NET class libraries, offering great malleability to create insurance products that are tailored to your unique business needs.
- Out-of-the-box business processes - User administration, automated out-of-sequence transactions, policy forms management, data mart solutions, balancing and controls and reporting solutions.
- Simplified Test Automation - Using an out-of-the-box regression-testing tool (Test Automation Center)

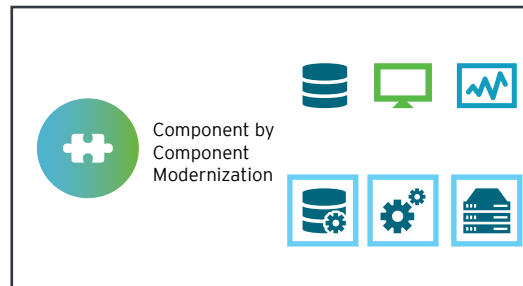
B. LEGACY TRANSFORMATION APPROACHES

Undertaking a legacy transformation demands many of the same phases and activities as standard development projects: planning, requirements definition, development, testing and implementation are all critical. However, certain activities require special consideration. Your approach to transformation depends on factors such as organizational culture, scope, urgency, risk tolerance, existing technology stack, technical expertise, program management maturity, funding availability and more.

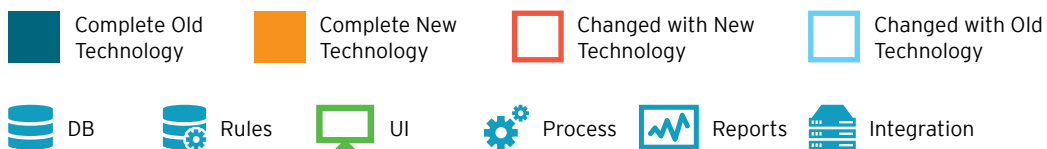
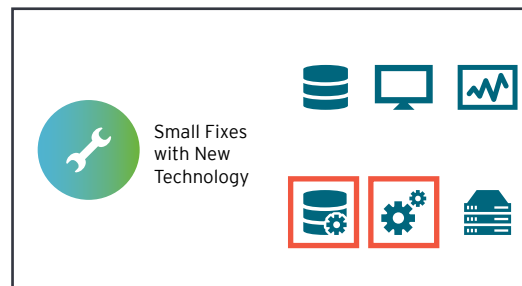
1. TOTAL TRANSFORMATION



2. GRADUAL REPLACEMENT



3. DUCT TAPE APPROACH



B.1.1. Total Transformation

In this instance, a carrier’s entire IT system is rebuilt using modern technology and the old system is sunsetted. The new system is built from scratch using the Duck Creek Suite, with data migration from the legacy system.

<p>Example</p>	<p>End-to-end policy administration/billing/claims moderation</p>
<p>Challenges</p>	<ul style="list-style-type: none"> • Legacy system doesn’t support newer capabilities needed by business • Unsupported technology platform still carries expensive licensing • New, unified business capabilities and operations needed post-merger/ acquisition • Business agility and speed to market needed to respond to market changes
<p>Benefits</p>	<ul style="list-style-type: none"> • A single platform for all your commercial, personal and specialty lines of business • A single platform for all distribution and service channels—consumers, brokers, agents and aggregators • .NET technology stack, SOA-based architecture and integrated suite for wider adoption and integration • Greatly increased speed to market with prebuilt Duck Creek Suite and out-of-the-box features and integration accelerators • Prebuilt, state-of-the-art policy, billing and claims servicing transactions • Easy to use, with extremely flexible maintenance of business rules, ratings, coverage, billing and payment plan changes • Out-of-the-box data mart solutions, reporting, product management, policy forms management, financial reporting and product cross-selling • End-to-end SaaS solution ensures that carriers always have the latest releases of software and templates, as well as holistic security, on-demand scalability, resiliency and optimized, predictable infrastructure operating expenses

B.1.2. Gradual Replacements

In this instance, a component or functional block of an insurance system is replaced with a Duck Creek solution and moved to production as a separate application, while the rest of the system remains legacy technology. Over time, remaining components or functional blocks are replaced with separate applications and gradually the entire system is rebuilt. For closed books of business, where predominantly renewals and rate changes are done, gradual replacements based on business priorities reduce upfront cost and can reduce overall transformation complexity.

Example	Modern policy administration product added to a legacy system
Challenges	<ul style="list-style-type: none"> • Replace entire system one component at a time, with controlled release of budget • Change existing systems from batch to real-time/online • Replace legacy applications with new user interface (UI) supported by browsers and mobile devices • Reduce licensing and operating costs
Benefits	<ul style="list-style-type: none"> • Low-risk way to transform an entire system by moving one piece at a time • Requires lower, one-time budget approvals compared with a total transformation • Can be beneficial when only a few components contribute to most issues • One functionality is migrated at a time, lowering business impact and risk • Work volume is less than in a total transformation, requiring less management bandwidth • Breaks one large system into service oriented architecture(SOA)-based componentized systems

B.1.3. Duct Tape Approach

In this example, localized, small-scale changes are implemented using Duck Creek solutions to address specific issues where core architecture and technology remain the same. This approach can be used to build a capable application that will be bolted to the main legacy system to enhance overall capability.

Example	Replacing legacy rating component with Duck Creek Rating
Scenarios	<ul style="list-style-type: none"> • Company plans to continue with a legacy system, but will fix some existing issues with new technology • Focus on current problems (e.g. improving KPIs/metrics) that must be solved ASAP <p>Facing a new problem in the middle of the year with no budget for a more comprehensive solution</p> <p>Stopgap solution to fix current issues gains enough time for planning modernization</p>
Benefits	<ul style="list-style-type: none"> • Features small-scale changes offering comparatively large returns • Doesn't require huge investment and can be supported through ad hoc budgets • ROI is concrete and substantial and increases the confidence of the project sponsor • Offers quick wins since results are often delivered in months • A less risky approach; probability and cost of failure are typically low • Doesn't require as much management attention as larger transformations do

C. REQUIREMENT MANAGEMENT APPROACH

In any core system migration, most of the challenges come from requirements buried in legacy systems. Due to the sheer size and complexity of legacy applications, it is often extremely difficult to separate or extract the business- and non-business-related rules that drive a carrier's operation. Lack of system documentation and unavailability of experts serve as major roadblocks in most insurers' transformation journeys. Cognizant follows these recommended principles for a smooth transformation:

C.1.1. Understand carriers' business needs today, as well as their future goals

Around 45% of features delivered with most insurance technology systems are never fully utilized. It would be wasteful to simply "redevelop" all functionalities in a system without evaluating their usage and importance. During project inception, a requirements-gathering workshop with a business analyst team should be conducted to demonstrate out-of-the-box features, understand requirements and future goals and identify gaps in the insurer's current system.

C.1.2. Design more efficient business processes to leverage increased capability

Cognizant will help you to take advantage of Duck Creek's state-of-the-art insurance software capabilities and features and overhaul key business processes, enabling you to achieve greater return on investment, cost reduction and quality of service.

C.1.3. Transform business processes with out-of-the-box features that leave core requirements intact

The Duck Creek Platform has off-the-shelf functionality built on web-enabled, service-oriented, event-based architecture. The platform offers ultimate flexibility to configure and customize applications that align to core business processes and focus on cost-effective and extensible transformation (without compromising core requirements).

C.1.4. Understand and document core business functionality

We start with major components and drill down into subsets of functionality to compare those features to current business needs, then transition into core requirements for transformation. We avoid documenting system processes attached to legacy systems and make Duck Creek solutions backward-compatible as necessary. Cognizant has Duck Creek requirement-gathering templates to identify and extract business rules embedded in legacy systems. Leveraging them, along with in-house requirement extraction tools, expedites the overall transition process. We identify and migrate:

- **Product Rules:** Extraction of product structure, coverages, covered risks, product offering eligibility, regulatory rules, etc.
- **Underwriting Rules:** Extraction of coverage and limit offerings, underwriting questions, schedule credit/debits, risk capturing, etc.
- **Rating Rules (Algorithms):** Extraction of premium calculation steps, premium breakdown, premium override and adjustment rules

- **Referral Rules:** Extraction of risk- and authority-based referral rules
- **Users and authority:** Defining authority for all applicable users
- **Process Rules:** Capturing of business process rules based on business process types and subtypes
- **Interface Rules:** Extraction of data including service contacts for all interfaces

C.1.5. Define non-functional requirements

Insurers often fail to document nonfunctional requirements, like performance, security, compliance, browser compatibility, branding and usability . These requirements, however, are critical to an application’s overall usability and maintainability.

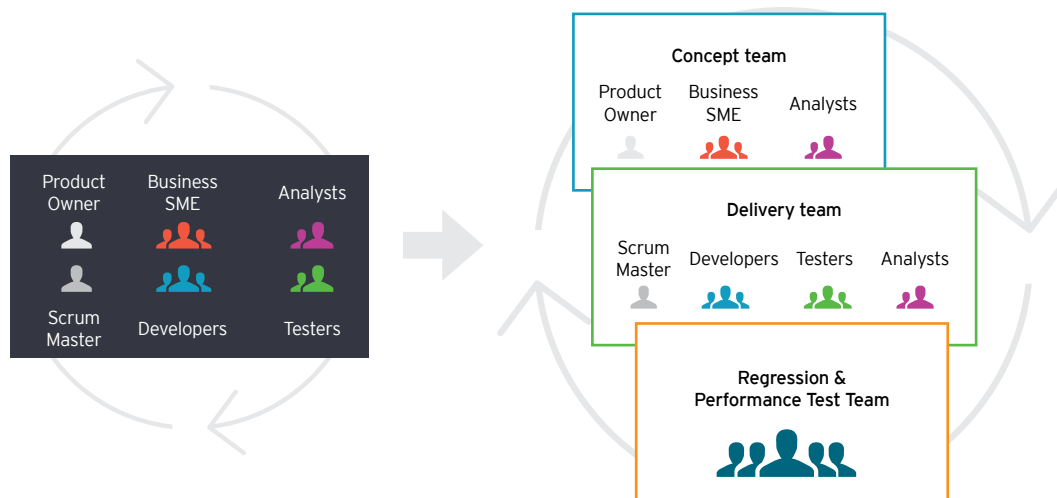
Cognizant’s recommendation is to analyze Duck Creek’s out-of-the-box features and requirement extracts, then define wireframes (along with workflows) in order to conceptualize the overall functional solution.

D. IMPLEMENTATION APPROACH

After consolidating lessons learned across various different legacy transformation projects, Cognizant has formulated a Hybrid Agile Approach methodology for smooth legacy system transformation.

“Orthodox” Agile-Scrum Approach

One self-organizing, cross-functional team writing stories, designing, developing, testing and producing production quality functionality in each sprint



Agile Approach for Scaled Projects

- Concept Team - creates requirements and designs - runs ahead of Delivery Team
- Delivery Team - develops and functional tests requirements/designs
- Regression & Performance - executes automated regression and performance testing

Our Hybrid Agile Approach enables:

- Alignment to out-of-the-box: Cognizant's approach, performing business process definition at the end of the inception phase, aligns to the out-of-the-box solution for Policy, Billing and Claims without any major customizations.
- Reduced program risk: Model ensures mini-integration is performed at a logical point as part of sprint testing.
- Built-in feedback: Mechanisms to foster continuous improvement throughout the lifecycle.
- Tracking and managing amount of customization: Cognizant performs an audit to assess the level of customization using scientific methodology to ensure appropriate action is taken at the right time, preventing unnecessary heavy customizations.

Cognizant's Duck Creek Center of Excellence offers many solution accelerators and plug-in components to guide and streamline any legacy transformation. All solution accelerators are tested in real transformation projects, which provides significant advantages during a carrier's transformation journey. Below are some examples of key frameworks/accelerators:

Framework	Description	Benefits
Duck Creek Mapping and Schema Deviation	Generates data element mapping and Duck Creek data model deviation between two releases; generates requirement document comparison report [Excel]	<ul style="list-style-type: none"> • 40% effort savings during integration data mapping • Identification of requirement changes between two versions • Assessment of downstream impact of any new releases
Orphan Field Cleaner	Removes unused orphan data elements in Duck Creek products after thorough validations	<ul style="list-style-type: none"> • Performance optimization • Removal of any redundant Duck Creek configurations and improved code quality
Duck Creek Forms Configurator	Automates forms configuration, variable screen generation and mapping processes	<ul style="list-style-type: none"> • 50% effort savings for new forms configuration • Elimination of manual errors in mapping fields to forms

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Framework	Description	Benefits
Duck Creek Inheritance Sanitizer	Sanitizes hierarchical relationships of all manuscripts	<ul style="list-style-type: none">Automated process corrects inheritance relationships in case of any design changes
Duck Creek Field Organizer	Automatically detects the nature of all data elements and organizes them in correct groups	<ul style="list-style-type: none">Ensures Duck Creek coding standards and best practices
Duck Creek Quality Analyzer	Performs quality reviews to assess the performance, reusability and code quality of Duck Creek products	<ul style="list-style-type: none">Reduces manual effort by 60% while performance-tuning products by identifying base sectors
Duck Creek Control Language	Automates activity workflows with an XML-based scripting tool	<ul style="list-style-type: none">Helps to easily set up a quick health check of Duck Creek servers; migrates data across environments; configures requests and tasksReduces effort by 15 % while migrating policies across environmentsPre-defines templates to reduce configuration effort by up to 20% for repetitive tasks
Export to Excel plug-in components	Exports policy/quote data in Excel spreadsheet using generic plug-in framework	<ul style="list-style-type: none">Can be used for bookkeeping, actuarial analysis and data testing

E. INTEGRATION WITH ECOSYSTEM:

While embarking on a legacy transformation journey using Duck Creek solutions, it is essential to formulate the right strategy to connect to other existing technical landscapes and to offer an integrated solution for an insurer's business. Building an enterprise service bus (ESB) layer simplifies the integration process. It offers a central routing component to pass messages to and from the Duck Creek Platform to other systems. ESB is highly scalable and reliable and can improve application uptime; it can also tackle the challenge of connecting APIs both on-premises and in the cloud, thereby bridging the network divide.

Cognizant classifies integration systems into three categories, defined by the way they are connected:

Integration	Recommended Approach	Benefits
Peripheral systems	Peripheral systems provide small amounts of data to the Duck Creek Platform in order to drive workflows, decision-making and content. Cognizant recommends a "stubs integration" approach. We develop a "stubbed" service/API in the ESB layer and then proceed with integration while actual ESB-to-target peripheral system integration is in progress.	Eliminates Duck Creek implementation dependencies and early integration testing to determine security and data contract issues
Upstream systems	Upstream systems provide comparably large amounts of data to the Duck Creek Platform to drive decision-making and content (for example, the Claims view in Duck Creek Policy). Cognizant recommends the use of "XSLTs" both to form a request and response structure and to eliminate unnecessary data.	Exchanges and stores only required data
Downstream systems	Duck Creek offers out-of-the-box Data Insights and Shred solutions, in which policy data is distributed to a relational database (or operational database) and downstream systems can get data from there. Data can be pulled/pushed both in real time and in batch mode.	Reduced loads to transactional DBs and flexibility to assemble other systems data while publishing data to downstream systems

Out-of-the-box, the Duck Creek Platform offers an integration framework that facilitates integration with any third-party services or any in-house-developed web services. It is suitable for web services with five to 10 input and output data elements.

Integration interfaces can also be defined in a hierarchical structure, where product-specific services are configured in the top product layer and common services are configured in the base layer. This increases platform reusability.

The Duck Creek platform comes with many prebuilt integration services that can be installed and configured without any customization, including:

- Duck Creek Policy–Billing–Claims integration
- Adviser integration
- Duck Creek Claims integration
- Hyland OnBase integration
- Pitney Bowes Address Verification
- Pitney Bowes Interactive Map

Duck Creek also offers prebuilt templates (preconfigured products) that come with many services pre-integrated.

F. QUALITY ASSURANCE APPROACH:

Over the years, Cognizant’s Testing Practice has leveraged its legacy transformation experience with Duck Creek solutions and has developed several tools and best practices that clients can use to increase the productivity and quality of their transformations.

F.1.1. Configuration Testing

Configuration testing focuses on validating applications to ascertain that configured Duck Creek product(s) meet business expectations. Each functional component is tested as follows:

- Screen-based testing to validate UI-level customization to the base product
- Business rules testing to ensure that business rules are configured properly
- Scenario testing to validate various user workflows
- Component-level integration testing to ensure integrations among components
- Out-of-the-box testing to ensure that functionalities are not impacted
- Stub testing to ensure data flow among specified components before all components are built or ready.

F.1.2. Integration Testing

Integration testing ensures the quality of integrated components across upstream and downstream interfaces. Each functional component is tested as follows:

- Transaction testing - Performing UI-based transactions to trigger requests and validate how the responses are handled in the UI

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- Data feed validation - validating request and response XMLs
 - Web services testing - Testing of online web service interfaces involving synchronous data exchange between Duck Creek products, message queues, data mirrors and interfacing applications
 - File-based interface testing - Validation of all inbound and outbound extracts to/from all components

F.1.3. API Testing

API testing focuses on validating the application without any user knowledge or intervention. The goal of API testing is to verify correct performance and error handling of each component prior to its integration. Out-of-the-box, Duck Creek provides a number of ways to perform API testing.

F.1.4. End-to-end Testing

End-to-end testing covers functional and performance aspects of a system; it is performed when the transactions/functionalities have been developed and tested and are ready for release. The key focus areas for end-to-end testing are as follows:

- End-to-end business flow validation
- Converted data testing through end-to-end flow, ensuring maximum usage of real-time data
- End-to-end reporting, performance and regression testing

F.1.5. Performance Testing

Cognizant recommends early performance testing during the development phase in order to provide a cushion for the development team to readjust architecture or configuration settings if needed. End-to-end performance testing is conducted in a dedicated environment before and after the completion of system integration test cycles. The key objective is to evaluate the insurance suite for load, stress, scalability and endurance testing aspects under scope.

F.1.6. Test Automation to Regression Testing

Regression testing focuses on the following:

- Developing regression test scenarios for all common and critical functionalities using TAC (Duck Creek automation tool)
- Carrying out automated execution regression suite prior to UAT deployment

F.1.7. Debugging/Tracing Capabilities

Out-of-the-box, Duck Creek provides several utilities to assist with debugging/tracing on the Duck Creek Platform. These utilities enable:

- Controlling the debug behavior of server
- Viewing server errors and other information in real time and as log files
- Logging debug information into a tilde-separated value file
- Monitoring server activity

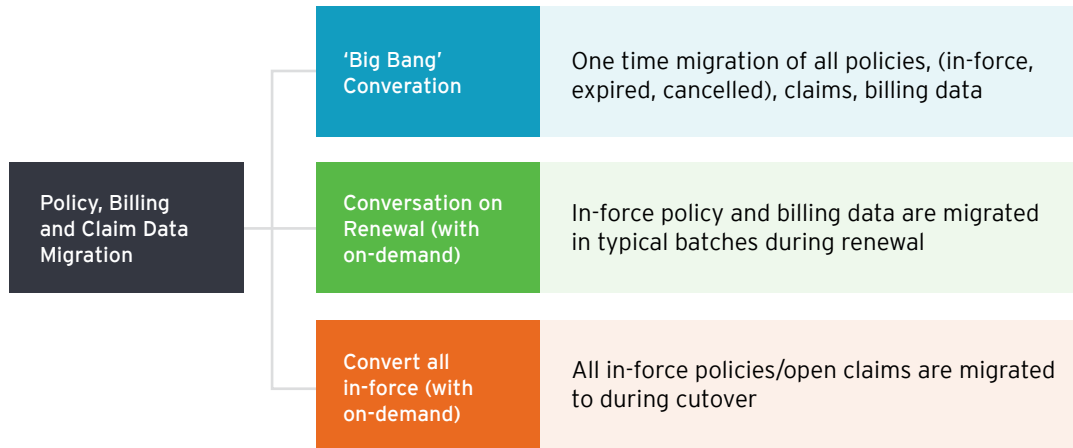
F.1.8. Cognizant Quality Tools

Over the years, Cognizant's Testing Practice has leveraged its legacy transformation experience with Duck Creek products and has developed several tools and best practices which clients can take advantage of to increase the productivity and quality of their transformation. These include:

Framework	Description	Benefits
Duck Creek Bug Bank	Centralized repository of all critical and recurring defects identified across all Duck Creek products	<ul style="list-style-type: none">• Enables early defect detection (10% effort savings)• Identifies the most defect-prone areas• Improves test coverage diversity
Rate Order Calculation Tool (ROC)	ROC has been developed with a collection of all rating steps and rating factors that affect rating of a policy for spontaneous premium calculation	<ul style="list-style-type: none">• Enables end users to analyze all rating steps and their impact• Supports batch rating execution—calculates premiums for approximately 850 unique business scenarios (datasets) in less than five minutes• Saves up to 10% of rate testing effort
Product Testing Checklist	An exhaustive checklist for ensuring that all basic functionalities of the product are working correctly	<ul style="list-style-type: none">• Enables product coverage through "quick testing" prior to moving to UAT• Ensures product behavior and design and associated test coverage
D-MART	Pre-packaged test case repository built on ADPART covering all business flows for Duck Creek products	<ul style="list-style-type: none">• 1200+ pre-packaged out-of-the-box scenarios available in repository• Jump-starts test design and increased test coverage• Design effort savings of up to 10%

G. DATA MIGRATION APPROACH:

The three data migration approaches below are typically adopted for any legacy transformation. The conversion-on-renewal approach is most widely used because it offers a lower cost of complete migration.



Clients can take advantage of Cognizant's legacy data transformation framework/tools below to optimize their legacy transformation journeys, while saving cost and time and improving quality:

Framework	Description	Benefits
Interface Control	A generic tool for checking source-metadata-related issues (in both Unix and Windows environments)	<ul style="list-style-type: none"> • Early detection of source metadata issues • Ensures that no partial claims data flows into Duck Creek products
Audit Balancing	Well-defined error and audit count tracking mechanism with entity- and attribute-level reconciliation	<ul style="list-style-type: none"> • Reconciliation across source to target and across all solution layers, ensures that all rejects get captured with zero data loss • Error, audit and reconciliation schemas in sync • Exhaustive reporting mechanism
Cross Reference	Predefined reference schema (code and data models) for Duck Creek Policy and Claims conversions. Automates type list conversion and reduces reference data maintenance issues.	<ul style="list-style-type: none"> • Holds all cross-reference data required for conversion seamlessly • Holds enrichment-related data through DB lookup instead of web service calls • Reduces reference data maintenance effort significantly (20% to 30% reduction)

H. MOVING TO A CLOUD-BASED SOLUTION:

Duck Creek OnDemand, the provider's SaaS solution for the P&C insurance industry, offers a fully-integrated, scalable, cloud-enabled suite of software (all Duck Creek products are available OnDemand as well as for on-premises installs), which helps to leverage its end-to-end capabilities, provides modern technology with minimal disruption and optimizes infrastructure operations. As a Duck Creek Platinum Delivery Partner, Cognizant provides consulting, implementation, enhancements and change management services for a secure and successful transition to Duck Creek OnDemand. Benefits of Duck Creek OnDemand include:

Own cloud instance	End-to-end SaaS solution	Multiple Duck Creek upgrades per year	Resilient solution-redundant backup and failover mechanism
Holistic security-encryption, third-party firewalls and preferred connectivity options	Multiple options to test, connect and deploy according to customer-specific needs	Automated provisioning and dynamic infrastructure scaling	Monthly ISO, AAIS and NCCI content updates via circulars
24x7 helpdesk support and incident management online, via email by phone	Dynatrace for application monitoring	Real-time performance monitoring and alerts	Pre-built third-party integrations



Duck Creek
Technologies

ABOUT COGNIZANT

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 205 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://twitter.com/Cognizant).



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